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ABSTRACT

Bicycling is a valuable medium for outdoor experiential learning. Bicycling shares with other outdoor learning activities some common elements such as environmental contrast, physical activity, a small group context, and a self-reliant form of transportation. However, bicycling has several unique characteristics that set it apart from other common outdoor activities. It lacks a wilderness setting; it involves distraction in urban areas, a relationship between the rider and the bicycle, and safety. Nonetheless, a bicycling program can accomplish the same programmatic goals as other experiential outdoor learning media. Four bicycling programs (Mankato State University's Teaching Strategies in Outdoor Skills course, the American Youth Hostel recreational cycling program, Mankato State University's Outdoor Recreation Committee program, and Concordia College's Bicycle Touring in Europe program) all emphasize the tenets of experiential learning and share common characteristics of outdoor learning. Using and enhancing the unique aspects of cycling, these and other programs can implement a process of learning that involves participants through commitment, reflection, and transfer of the experience. Appendices include various course handouts, guidelines, and outlines. (SB)

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CHARACTERISTICS OF BICYCLING AS A VIABLE COMPONENT TO OUTDOOR ADVENTURE PROGRAMMING

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A REPORT PRESENTED IN
EXPERIENTIAL EDUCATION 604
DEVELOPMENT OF EXPERIENTIAL EDUCATION

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IN PARTIAL FULFILLMENT
OF THE REQUIREMENTS FOR THE DEGREE
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by
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This report is submitted as part of the required work in the course Experiential Education 604, Development of Experiential Education at Mankato State University and has been supervised, examined, and accepted by the Professor.

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Professor R. B. Underhills
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Chapter 1

INTRODUCTION

Bicycling is often included as part of an outdoor recreation program along side other components, such as canoeing or backpacking. It is a popular hobby and a common pastime with growing interest that affects the whole industry or cycling. From the development of transcontinental bicycle trails to the implementation of a variety of cycling programs across the country, bicycling is a versatile and viable activity. Its popularity has entered the realm of outdoor adventure programming, taking its place alongside various other outdoor activities as a learning tool to enhance one's skills and perspective. It is the author's contention that the dynamics of cycling differ significantly from other common and popular outdoor activities, enough so to warrant a look into the implementation and justification of cycling programs as a means for experiential learning within the contexts of outdoor programming. Thus the need arises to look at the components of outdoor learning as well as the properties of experiential learning; how cycling fits into this mode or learning, why cycling differs from other outdoor activity and how cycling can be implemented on its own merits as a means to experiential learning.

It is the purpose of this paper (1) to explore the dynamics of experiential learning and outdoor learning as it relates to outdoor adventure programming, (2) to explore the components of cycling as they fit into an outdoor recreation/adventure program, (3) to look at the means to justification of a cycling program as an aspect of experiential learning, and

(4) to review examples of programs which use a cycling format based on experiential learning. This will be accomplished by a discussion of the properties and stages of experiential learning, the common elements to outdoor learning, an exploration of how and why cycling fits into this mode of learning. The author will review both general and specific guidelines for justifying and implementing a cycling program within an experiential education context in the second part of the paper.

Chapter 2

ASSUMPTIONS AND STAGES OF EXPERIENTIAL LEARNING

Despite a long history and a recent surge of active interest, the concept of experiential learning still struggles for an understandable and meaningful place in educational thought. From Socrates, who believed the process of becoming educated was more important than arriving at a final static state; to Dewey, who thought that the goal of education was to develop the thought processes with which we examine our experiences, the foundations of experiential education are rooted firmly in our educational context. Experiential learning has been part of the human experience since they began sharing their knowledge and skills. Within an educational realm, experiential learning encompasses many contexts, from apprenticeships with a craftsperson to field experiences or internships, from volunteer work to outdoor adventure-based programming. Yet experiential learning is often thought to be a modern day alternative to traditional educational forms. Its popular outlet is found in the area of outdoor adventure programming. The connection between experiential learning and adventure programming is frequently a nebulous one with neither instructor nor participants clearly understanding whether or not there is, or should be, a connection. Thus, the justification and implementation of outdoor programming as an educational tool can be a difficult and misunderstood idea, usually at the mercy of an ever-changing financial and political state of affairs.

Understanding the tenets of experiential learning, knowing how

to analyze the process of learning, and looking at how experiential learning can integrate into our present educational format will give a basis of thought that will take us into how the outdoor learning component fits into the experiential learning format.

Experiential learning can be based on three assumptions: (1) that one learns best when one is personally involved in the learning experience; (2) that knowledge has to be discovered by oneself if it is to mean anything; and (3) that commitment to learning is highest when one is free to set one's own learning goals (Johnson and Johnson, 1975:317). When a student is directly involved in an experience, her commitment to understanding the particular idea or skill will be enhanced as she becomes responsible for drawing her conclusions and generalizations of the experience. Referring back to Dewey's contention that the goal of education is being able to understand and use our experience, and this is achieved by developing the thought processes with which are used to examine prior experiences (Crosby, 1981:14), it might be said that experience alone cannot provide for such learning. It is the combination of one's experiences and the reflections of those experiences through which one's learning occurs.

Crosby (1981) states that, "Learning will happen more effectively if the learner is as involved as possible, using as many of her faculties as possible, in the learning; and that this involvement is maximized if the student has something that matters to her at stake" (p. 10). In order for learning to be enhanced, the process should provide the experiential opportunity to yield learning by providing a framework for analyzing new ideas, and testing these concepts in the new experiences. The process of arriving rather than the journey's end becomes a supportive tenet of experiential learning. This common element can be found in the

philosophy of Socrates and in the philosophical assumptions of Outward Bound, thus creating some indication of linking experiential learning with its history and present state of the art.

The learning theory of David Kolb provides a good process to understand the experiential learning cycle. Kolb calls his model "a simple description of the learning cycle" in which "experience is translated into concepts, which in turn are used as guides in the choice of new experiences" (Keeton and Tate, 1978:24). While depicting the ongoing cycle of learning, the model also reveals a dialectic interplay between contrasted abilities--concrete/abstract, reflective/active--in the learning process. This experiential learning model is a four-stage cycle (see Figure 1) (Keeton and Tate, 1978:24).

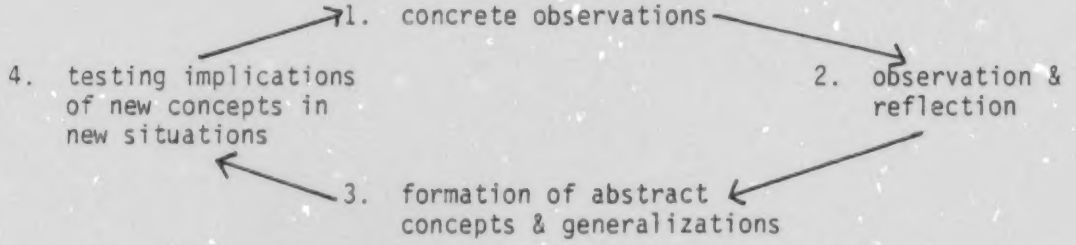
1. concrete observations
2. observation & reflection
3. formation of abstract concepts & generalizations
4. testing implications of new concepts in new situations

Figure 1

Kolb's Description of Learning Cycle

In this first stage--concrete, personal experiences--one participates in a particular activity or situation and feels the effect of being part of that action. Following this action, one moves to the second stage of observation, reflection, and examination of the experience. This is where the learner undertakes the understanding of the effects of the particular activity so that one would be better prepared to anticipate what action response should follow if the experience reoccurs. The third stage--

formulation of abstract concepts and generalizations--the learner understands the general principle of the experience. Generalizing may involve transferring one's understanding of the general principle to other situations. Here the connection occurs between the actions and effects over a range of circumstances (Keeton, et al., 1977:52). The last stage--the personal theory to be tested in future experiences--is "the application through action in a new circumstance within the range of generalizations" (Keeton, et al., 1977:52). Here the learning cycle is completed and the learner has completed the process of learning and the initial experience is transferable and useful in future experiences. The experience alone is sufficient to be called experiential education--it is the reflection process which turns experience into experiential education (Joplin, 1981: 17).

Kolb's model thus provides a compelling rationale for including experiential learning as an essential part of the learning process. It cautions against the assumptions that any experience can lead to learning in the absence of other modes. Only the experience that is reflected upon seriously will yield its full measure of learning, and the reflection must in turn aim at testing the newly refined understanding by further experiences (Keeton and Tate, 1978:25). The stages of experiential learning and the steps of the learning cycle provides a framework to compare experiential education with other educational modes, setting up a framework for evaluating a learning process working within an experiential context. It is not the purpose of this paper to conduct such comparisons or evaluate particular experiential systems, rather this discussion serves as a review of documented information of the experiential process of learning as is relative to contents of this paper.

One property that sets experiential learning apart from traditional learning is that it is time consuming. In order for the learner to integrate generalizations of an experience there must take place a certain repetition of the action pertinent to the experience. Initially, this time may seem excessive, yet once the consequences is connected to the action, experiential learning provides a direct guide to new actions.

Another property of experiential learning is that motivation is fundamental. Since the action occurs at the beginning of the experience, a subjective need for learning arises from the onset. With experiential learning, motivation is seldom a problem. This concept finds support in the three assumptions of experiential learning. The responsibility for learning is upon the learner. Motivation enables and enhances one becoming actively involved in one's learning and giving direction to one's conclusions.

Probably the weakest link in experiential learning is in the third property, generalizing from a particular experience to a general principle applicable in other circumstances (Keeton, et al., 1977:57-58). Post-experience discussion becomes important, as important for some as the experience. A few can go through the experience and infer from that experience what they need for other situations but most people need discussion or feedback to generalize the principles from one experience to another. Evidence for this need can be seen in the Outward Bound component of "debriefing", an integral part of the program.

The final property of experiential learning is that the information is less easily forgotten than that learned from traditional modes. The reason may be that the associations that embed it in memory are with concrete, personal experiences to which affect was attached (Keeton, et al.,

1977:57-58). Rather than learning from abstract or disconnected ideas, the student has personal contact and involvement with how and what information was being transmitted and learned.

Summary

From this discussion, it was the author's intent to share some general principles, steps and properties of experiential learning to lay the groundwork relating outdoor learning and more specifically the activity of cycling to the concept of experiential learning. Understanding its concepts and principles, one can see that experiential learning is a useful and useable educational tool when seen as a process to better knowledge and insight to one's experience. Learning can be enhanced when the experiential process of learning is used. Being involved, making a personal commitment, reflecting and transferring the new knowledge, all make the process of learning an experiential journey.

Chapter 3

CHARACTERISTICS OF OUTDOOR LEARNING

Often associated with experiential education is the use of the outdoors. Outdoor learning can find effective justification and rationale working from an experiential process of learning. A review of the elements and goals of outdoor learning will help provide a basis for understanding the relationship between outdoor activity and experiential learning. The author will also examine the dynamics of outdoor learning in order to provide a format for exploring how cycling, as an outdoor activity, is a means for experiential learning.

Providing an opportunity for students to explore areas where there is no guaranteed success creates a dynamic learning process where uncertainty and anxiety are followed by a desire to enter fully into an experience (Webster, 1978:15). The learning process in an outdoor environment has great potential for changing behavior, stimulating interest in working towards a desired goal, and enhancing and integrating the experience. The material or skills being learned are presented in a unique situation where individual involvement and participation are key to its success.

The setting is unfamiliar and new to all the participants, thus creating a learning environment where the participants have a common task of establishing and understanding the rules and routine within their particular learning situation. Also, the cause and effect relationship of a particular consequence is sharpened in the outdoors. The many complex variables that intertwine in our regular environment, which can scatter

one's process of learning, are reduced in an outdoor context to those relating to the controlled environment. The consequences for actions, good or bad, are seen immediately and the participants are able to see and feel its effects.

Outdoor learning in this paper will refer to a set of activities that have certain common characteristics. These common elements to outdoor experiences relative to this context are: (1) wilderness setting/ environmental contrast, (2) physical activity/direct experience, (3) small group context, and (4) stress.

Wilderness Setting/
Environmental Contrast

A wilderness environment is a central element to many outdoor and experiential programs. The setting is frequently alien to the participants and provides a shock which encourages them to look at themselves from a new perspective (An Analysis of the Impact, 1971:8). In the wilderness, the participants are forced to depend on each other for physical survival (An Analysis of the Impact, 1971:8); each group forms a community all its own with each individual responsible for the well-being (physical, emotional and psychological) of others. When a group exists for a specified length of time and with a particular common frame of reference within an immobile area, such as a national park or regulated wilderness area, there develops an effective context to attain the desired goals of outdoor learning. A wilderness setting can provide a framework for the acquisition of new skills and perspectives.

Outdoor learning is not limited to a well-defined, confined wilderness setting to accomplish its desired outcomes. If one accepts the use of an environmental contrast as a characteristic of outdoor learning, with

the assumption that such a contrast presents a sharp change (Kesseleim, 1974:3), than other outdoor environments, such as cycling, can accomplish the same desired goals.

The pride one develops in learning the skills necessary to move safely, efficiently and effectively through the outdoor environment being used enhances the assumptions and principles of outdoor learning. Individual and group skills are sharpened when the outcome is clear and defined. There are fewer variables unrelated to the experience to distract the process of learning.

Physical Activity/Direct Experience

In an outdoor activity, away from the protected environment of our well-ordered, technological society, the demands on an individual are simplier and fewer, yet they call for action. The skills needed for a particular situation are specific and directly affect the outcome of the action. The physical activity component, while encouraging strength, endurance, and conditioning, often places the learner in a situation where other aspects of her being are tested. An ingredient central to Outward Bound process is the recognition of the closeness of the relationship between body, mind and spirit. The acquisition of physical skills is seen not as an end in itself but as a means of enlarging the student's capacity for experience and enabling her to realize more fully as an intellectual, physical and moral being (Minnesota Outward Bound Instructor Handbook, 1981:7).

Often the physical activity will involve using necessary skills over an extended length of time. These skills, learned earlier in the controlled environment, will be put to test in situations that involve more

than having the strength or endurance to do the activity. The physical and emotional needs of the individual and the group becomes the concern of the entire community. Working together, sharing responsibilities and cooperation become as important and integral to accomplishing the experience as the physical skills needed to respond to the action. Having to face unfamiliar physical and emotional risks, the individual has an opportunity to see herself and others with a new understanding.

Small Group Context

In the outdoors, the group task is learning to perform survival skills as effectively as possible. The group must learn how to survive collectively. Within that group task, individuals must be able to perform these basic skills efficiently and flexibly (Jensen, 1979:39). Instead of being in a safe, familiar environment where it is possible to interact on a habitual and superficial basis, participants will be in a completely new environment, where the rules are neither well understood nor habitual; where the routines are anything but regular, where the consequences for making mistakes can be serious, and where among strangers, social and emotional support will have to be earned rather than taken for granted (Jensen, 1979:39). The small group context involves the concepts of cooperation, collaboration and inter-dependence, rather than being one of competition or "going it alone".

Kurt Lewin's research emphasized the importance of active participation in groups in order to learn new skills, develop new attitudes, and make behavioral patterns more effective (Johnson and Johnson, 1975:316). The social function of the group is essential to the group's survival task. If the group is to be successful, group involvement must be more rewarding than involvement. Sharing and cooperating with other group

members so that survival tasks are accomplished harmoniously and efficiently is essential to maintaining high morale and is part of the group's social function. In the outdoors, group social functions are even more important than in familiar environments because: (1) the participants must depend upon each other for emotional support during the trip and (2) for safety reasons, it is imperative that participants not leave the group (Jensen, 1979:39). The task of the experience cannot be accomplished individually, rather as a collective action, using the physical skills acquired and the cooperation and collaboration of the group members to move through the situation to its desired goal.

Stress

Stress is any action or situation that places physical or psychological demands on a person. In itself it is neither pleasant nor unpleasant. It is one's perception of the change that determines whether the stressful event or situation is regarded as pleasant or unpleasant (Barnes, 1977:3). Stress is a natural and expected reaction to the unfamiliar environment and the new context within which an individual is responding. Because there is frequently stress or danger involved in outdoor activities, conventional social defenses are down and the students learn about each other quickly and deeply (An Analysis of the Impact, 1971:130). Meeting stress situations, the students develop a feeling that they can do more than they previously realized--this feeling is then translated into an improved self-image and an increase in self-confidence (An Analysis of the Impact, 1971:9)

In fact, many of the stress activities used in outdoor programs represent little physical risk, but they have components of drama and high psychological risk. The role of stress, besides being vital to

improving self-image and self-confidence, is also a significant factor in bringing a group of individuals together, welding them into a responsible and concerned community (An Analysis of the Impact, 1971:9). Having survived/succeeded, the students are more receptive to discuss and work toward the solution of their own problems together. The activities stimulate a climate of acceptance, knowledge and tolerance (An Analysis of the Impact, 1971:30).

Stress can be employed in several ways: (1) it can function as a catalyst to stimulate a desire for change; (2) it can function as a motivator for internalizing new behavior; and (3) it can function as a self-checking device to ascertain whether new behavior has been internalized (Kesseleim, 1974:12). It is important that stress be an inherent part of the experience rather than seeming to be contrived or artificial. When used appropriately, stress can be a powerful and influential tool in the process of outdoor learning.

The process of re-examining one's routine assumptions is helped substantially when one is involved in situations requiring new skills and new knowledge. Outdoor activity can be an effective medium for enabling this process. With involvement and commitment established, the participant embarks on observing and reflecting on the importance of the new skills and perspective, as they find relevant use for the skills within their contained environment. This is where the importance of support and feedback come into play in enabling and enhancing the transfer of the new knowledge and skills to new environments.

Having established readiness in this way, a transition phase then offers insight into alternative behaviors, attitudes or skills (Kesseleim, 1974:10-11). Maintaining the new behavior must then be

enhanced in order that experience and its affect may be retained over time. These elements are fundamental to the completion of the experiential learning cycle.

Laura Joplin (1981:19) explains the experiential process of learning in a five stage model:

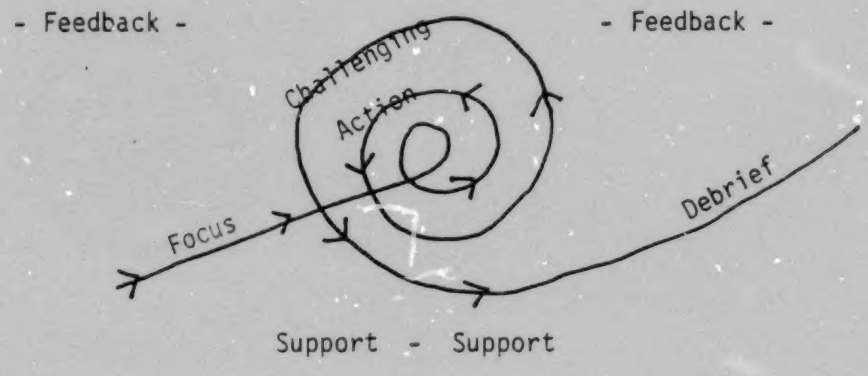

Figure 2

Five Stage Model

This model was developed to communicate an experiential action strategy to teachers.

Focus: is the first stage of the cycle. It includes presenting the task and isolating the attention of the learner for concentration. It prepares the learner for the challenging action that is to follow.

Action: this stage places the learner in a stressful situation where she is unable to avoid the problem presented. It involves much of her attention and energy in sorting, analyzing, moving, struggling, etc. Greater responsibility is given the student in the action phase.

Support and Feedback: exist throughout the learning experience. Adequate support enables the student to continue to try. Adequate feedback will ensure that the student has the necessary information to be able

to move ahead.

In the fifth stage, Debrief, learning is recognized, articulated, and evaluated. It is the sorting and ordering of information, often involving personal perception and beliefs.

As Joplin's (1981) five-stage model of experiential learning shows, an outdoor environment or activity can be effectively utilized to promote such a learning process. One educational system which attempts this combination is Project Adventure, an elementary/secondary education program (Webster, 1978:15). Incorporated into their educational objectives are the elements of outdoor learning plus the components of experiential education. The first, adventure, is important because it provides the emotional setting within which it becomes possible for the students to feel and know that they have been involved in something that personally mattered. Cooperation then emerges as a group of people working toward a common goal which they cannot accomplish individually. Direct experience can help to increase students' emotional and intellectual understanding of academic or abstract material and give it a potency and importance previously untapped. The fourth objective is that education should give students an opportunity to bring together and to integrate the physical, emotional, social, intellectual, and even aesthetic aspects of their personality.

The fundamental goals of outdoor learning are enhancing the self-image of the participants--that understanding one's self promotes self-esteem; enhancing and increasing the participant's environmental awareness; and creating an atmosphere for internalization and transfer of the knowledge and skills acquired. Because the cause and effect relationship of an activity is sharpened within an outdoor context, as a result of less

ambiguous outcomes and less complex variables, the learning process has more potential to be enhanced and integrated. The environmental contrast provides not only a dynamic format that encourages the participant to look at herself and others from new perspectives, but it also can serve as an opportunity to increase the awareness of participant to the contrasts in a variety of environments, urban or wild, on the road or in the field, and work or school. This process is accomplished within a small group context through the cooperation and participation of the individual involved, working collectively within the context of a common environment. Through the use of support, feedback and by debriefing the experience, the participant is encouraged to meet the challenges with the application of appropriately acquired skills and through the cooperation and aid of the other members of the group.

One's self-concept is enhanced when facing the challenges presented in an outdoor environment. Commitment, involvement, participation, reflection, internalization and utilization are aspects the individual deals with when involved in learning experientially in the outdoors. Outdoor learning can work hand-in-hand with experiential education to create an environment where the material being learned is relevant and applicable to the learner. Experience alone is insufficient to accomplish all this. It is the process of learning with the reflection and transfer of what was learned that created this dynamic educational process of learning.

Chapter 4

BICYCLING - AN OUTDOOR ACTIVITY

Bicycling, as a means to implement an outdoor learning process, plays a unique role as an outdoor activity within this context. Although cycling shares many of the common elements of an outdoor activity within an experiential mode, it also has components inherent to its own process that sets it apart from other outdoor activities. The author will review the similarities and differences to indicate how cycling has a justifiable yet unique role in an outdoor learning context.

Cycling has its place in the outdoors in a variety of ways. As a recreational form, one can use cycling for occasional weekend jaunts, as a form of transportation to get to a recreational spot, or as a means for cross-country or cross-cultural excursions. Most of the information and material reviewed by the author dealt with cycling from this recreational context. Much of the available material on cycling dealt with how and where to cycle. Very little dealt specifically with why one would use cycling to accomplish goals, especially outside or beyond a recreational use. Understanding why an activity, such as cycling, would be appropriate and advantageous in implementing an experiential learning process will allow those designing a program more attainable and applicable course or trip objectives.

Often within its recreational design, cycling, especially in small groups, can fulfill many of the educational learning stages or steps discussed earlier. There is personal commitment, unfamiliar environments, new

perspectives, and acquisition of skills. The individual develops generalizations and transfers the experience into new contexts outside the trip. Cycling shares these common characteristics with other outdoor activities when the components of experiential and outdoor learning are utilized.

Common Characteristics

Environmental Contrast

Cycling utilizes the outdoors as an environmental contrast. The setting, while usually not a wilderness, is new and unfamiliar. Although it may not be as alien as a remote wilderness area, the method of traveling, even through a familiar environment, is new and unfamiliar. This creates a context which requires the individuals involved to look for new perspectives in learning to deal with the new environment and with those which whom they are sharing the experience.

Physical Activity

As a physical action, cycling shares a common value base with other outdoor activities commonly used in outdoor learning, such as canoeing or backpacking. The experience that the individual has in meeting the challenges of physical conditioning or being directly involved in the physical experience, and the stress that results from that encounter are valuable tools in the learning process. Acquiring new skills and knowledge and being able to apply them effectively in order to move skillfully and safely through the new environment develops pride and builds self-esteem in the participants.

Small Group Context

It is often the foremost group task to learn to perform the

necessary survival skills in order that the group can accomplish its goals. Learning to travel efficiently and safely requires the individuals to participate in a cooperative and supportive group environment. Having fun and sharing the new adventure are also important group components. Living together for any duration of time requires cooperation and sharing in responsibilities of the group members if the experience is to be successful. Traveling safely, having fun, learning and experiencing together are all equally important elements to a successful trip. Group understanding and cooperation of these elements will enhance the experience for those involved.

Self-Reliant Form of Transportation

Cycling, as with canoeing or backpacking, is a self-reliant, self-propelled outdoor activity in which the individual, under their power, transports themselves through their environment. In addition to being involved in a physical activity, the individual is also dependent on activity to get them to their destination. Whether one uses arms, legs, or feet to move them through the new environment, the participants are involved in a cause and effect physical relationship with their mode of transportation. Rock climbing or ropes course activities are situations where physical activity is important and useful in a learning process but where the activity is not connected with the group's movement through a specific environment.

Not only is the individual's personal commitment to the experience, i.e. cycling, important but their involvement as a group member working together to physically move through an environment depends on how well the group utilizes the knowledge and application of the necessary skills. This

type of outdoor activity, where the participants, under their own power, move themselves through a physical activity provides a format for attaining a successful learning process.

Cycling shares many similar components of outdoor learning with other commonly utilized activities such as canoeing or backpacking. The experience, when meaningful, applicable and attainable, provides a base for commitment, involvement, and utilization of new skills and perspectives on the part of the individuals involved. As a physical activity providing the participants with direct experience in a new environment within the context of small group cooperative living, cycling is an important and useful tool for outdoor experiential learning.

Unique Characteristics

There are several aspects to using cycling in an outdoor learning process that makes cycling a unique outdoor activity. These elements set cycling apart from its common counterparts, i.e. canoeing, backpacking, and requires a diversified understanding of its relationship, as an outdoor activity in a learning situation, to apply its components successfully. Reviewing cycling's similarities with other outdoor activities is one step in implementing its components, but failing to understand its different and unique aspects will result in difficult attainment of one's objectives.

Based on inferences the author had made through readings and personal experiences dealing with the issue of cycling's differences as an outdoor activity, the following four aspects support the above stated characteristic contrast. From the author's search of available resources, there appeared to be little research on specific aspects unique to cycling. Yet these component differences are addressed indirectly or inadvertently

in programs adapting or implementing cycling as a medium for an outdoor learning activity.

Wilderness Setting

One of the elements of outdoor learning is the use of a wilderness setting as a context to achieving desired, programmatic goals. Its familiarity and contained setting encourages concentration and dependency on the group process to move safely and skillfully through an area. As most wilderness areas are immobile resources, such as a national part or a protected environmental area, the group travels to the area, accomplishes their objectives within the setting, and then leaves the area. With cycling, the lack of a wilderness setting is an important element that needs to be recognized and discussed in formulating course objectives. How one utilizes the wilderness in an immobile resource, such as canoeing in the BWCA, will be different and difficult to transfer to a course's objectives using cycling. Acknowledging the difference can be the initial step in understanding the particular aspects unique to cycling.

Because bicycles use roads, bikepaths or established bike routes, cycling in the wilderness is rare. One may cycle in remote areas or undeveloped regions, but the road being used emanate from and lead to populated areas. Travel will include encounters in both urban and rural environments. The cyclist will not have the privacy or seclusion of a remote wilderness environment to try out her new perspectives and skills. She will have to do so while accommodating a variety of other and maybe unrelated factors. The route will be shared by others uninvolved in the trips or courses traveled.

Since the group is not traveling within a contained environment, such as canoeing in the BWCA, the dynamics of riding is different from those

encountered in such an area. They are traveling through an area or region that supports and encompasses a variety of activities from industry to recreation. The cyclists are required to accommodate these distractions while acquiring the skills and perspectives needed to accomplish the course goals. Traveling by bicycles becomes the process, the medium and the means to accomplishing the objectives or goals of the group and the trip.

Another way of defining a wilderness setting is to use the concept of environmental contrast. The contrast of environment provides the elements of being unfamiliar and feeling alien with the environment. This encourages the participant to rely on the group and be involved in the group's process of dealing with the new perspective on the environment they are in. It also allows the individual to develop new perspectives and skills in learning to deal with themselves in their environment. An individual may be familiar with the region she is cycling through or have traveled on the route by other modes of transportation. But using a new medium of travel, cycling, and being part of a group who shares the commitment and involvement of traveling by bikes, the individual is able to utilize the new perspectives produced from the environmental contrast when using cycling as a means to exploring new places and perspectives.

Distraction in Urban Areas

Another unique aspect to cycling as an outdoor activity is the distraction the group may encounter when traveling in or through an urban area. Just as an urban area can provide useful access to the group, it can also provide unnecessary or undesired distraction to the group. Replenishing food supplies, repairing or replacing bike equipment or visiting historical or cultural spots are activities the group may want or need to

do. When planned into the group's travel plans, this access can provide a necessary and enriching aspect to the trip. But this access can be detrimental to a group especially a group who may be having difficulty concentrating on their trip goals. The distraction from fast food places to movie halls, from candy shops to pinball machines, especially with young groups, can draw the group or particular individuals away from their involvement and commitment to the group process and can hinder group cohesiveness. Understanding the elements and effects of the distractions that exist when a group travels into an urban area will aid the group in dealing with this dilemma should it occur while traveling. Each group will need to work through this aspect to arrive at a desirable and attainable solution unique or pertinent to their own particular group process and goals.

Relationship Between Rider and Bicycle

The third aspect unique to cycling is the relationship between rider and bicycle. Unlike other outdoor activities, cycling requires a particular understanding of the equipment being used in order for the cyclist to ride successfully. A cyclist can have the best bike and equipment, know a great deal about riding techniques, have a good commitment to this mode of travel, but if she does not know how to fix a flat tire, she will be unable to travel efficiently thus jeopardizing the success of the trip. Whether a recreational trip or an educational experience, the ability to keep the bicycles in good running condition will be a necessary skill to the success of the travel. It may be designed into a course that the group acquires at least a minimum understanding of basic bike repair. Or it might be left to the responsibility of the leader to make the necessary repairs or adjustments. However, the group deals with this

aspect of cycling, basic road repair skills will be a necessity to successful riding.

Another factor to this issue of the relationship between rider and bicycle is the riding technique of the cyclist and the riding ability of the group. A bike may be in good riding condition at the beginning of a course but the riding style of the group and the riding conditions encountered by the group will promote periodic maintenance. Improper handling of the bike such as dropping it to the ground, hitting potholes, riding off curbs or riding when in need of repairs will impede the group's travel by causing delays, diverting group energy from traveling to repairing and/or altering destination points because of time taken up with repairs.

If the group encounters adverse weather, primarily rain, the bicycles will require periodic cleaning and lubing to run efficiently. Roads in rough condition or that are gravel can be hard on the cycles, requiring periodic adjustments. These adjustments should be seen as expected and done in a preventative manner. That is, done as soon as repair conditions occur so that the condition does not continue or become more in need of repair. Also, having good maintenance skills will allow the cyclist to see ahead of time routine and periodic repairs or adjustments that need to be done. Thus, awareness of basic skills applied in a preventative context with an understanding of the relationship between rider and cycle is an important and necessary component for the group to understand and implement in order to arrive at their desired destination.

Safety

Underlying any outdoor activity is the safety component. The safety issue is not unique to cycling, yet there are elements that are more specific to a cycling trip when contrasted with "wilderness" trips. The

components commonly shared with outdoor adventure-based programming, such as program safety policies and procedures, liability management, staff selection and training, or emergency care procedures are dealt with more specifically in a variety of publications and manuscripts. It is not the intent of the author to elaborate on these aspects. Rather a review of safety factors relevant to the activity of cycling will be presented to show specific awareness needs involved in a cycling program.

Safety issues are related to other issues unique to cycling. Accidents involving auto drivers and bicycle riders, being distracted from concentrating and focusing on the activity, neglecting to keep equipment in safe, running condition are examples of situations that are likely to occur when proper awareness and implementation of safety concerns are neglected or ignored.

Because the roads or routes used to facilitate the group's movement are also shared by other forms of transportation uninvolved in the group's activity, the group needs to be aware of the danger that exists because of this involved yet frequent interaction. Understanding the rules of the road, having good riding technique or confidence, knowing how to react to a variety of road conditions are elements of safe riding the participants need in order that the risk of an accident is reduced. Also, understanding and accepting the relationship one will have with other forms of transportation while on their journey will reduce the tension and danger that can be heightened when a feeling of animosity or annoyance occurs when sharing the road. This feeling can be reduced by riding primarily in rural areas but if the urban area provides access to the group for accommodating group needs or plans, accepting the riding conditions that will occur will make for a safer, more pleasant trip. A quiet, secluded

back road can prove quite treacherous if the local industry uses the road to haul logs, grain, coal, etc. Sharing a narrow, two-lane with coming and going eighteen-wheelers can be as, or more, dangerous than riding the streets of London at rush hour.

Often accidents occur when the riders are not concentrating on riding safely and properly. Riding too close to other riders, riding too fast, not paying attention to road conditions, or looking somewhere else but ahead are reasons bicycling can be a dangerous activity. Especially when traveling through urban areas, the distraction a city offers can increase the chances of an accident. Being aware that this distraction can be a contributing factor to impeding the safety of the group should be discussed and understood by the whole group. The participants need to be committed to and involved in developing an awareness to these factors for it will be them that will ultimately be involved if an accident occurs. Since the whole group becomes involved when an accident occurs, it is both an individual and group responsibility to be aware of the distractions and conditions that can hinder safe travel.

The condition of the bicycle, how the cyclist takes care of it and how she rides will also be factors involved in safe travel for the cyclist and the group. A trip plagued with breakdowns and repairs cannot only impede the group's intention of arriving at their destination but can cause frustration within the group, impeding the group process. The frustration, fatigue, stress, etc., that can occur especially when a trip has numerous mechnical problems can be elements to strengthening the group process and can be beneficial. They can also be factors that lead the group to letting down their defenses and diverting their concentration. Even if this happens for a short time, there arises the potential for

creating a condition for an accident or an injury to occur.

Summary

As cycling shares many similar components with other outdoor activities, it has several aspects which are unique to it. The lack of a wilderness setting produces a need to alter the objectives an outdoor program might use. If, as a characteristic to outdoor learning, a wilderness setting is defined rigidly within the confines of an immobile resource, such as a national park, then cycling will have difficulty fitting into this characteristic. On the other hand, if the element of an environmental contrast is applied, the effect and results of the use of this characteristic can be the same as in a wilderness setting and cycling finds its niche as an outdoor activity accomplishing the objectives set forth earlier to experiential outdoor learning.

Sharing the road, the distractions in urban areas and the lack of a "wilderness" setting, are dynamics unique to cycling that when understood and accepted by the individuals involved can be a new and pleasant way of traveling roads shared by faster modes of transportation unable to take in the sights and sounds of the roadside. Yet the lack of isolation from the familiarity and distractions of this environmental contrast is a factor that needs to be recognized and discussed by the group.

Knowing how to ride and how to keep the bicycles in good running condition is a necessity the group must deal with before the trip goes out. Understanding the relationship between rider and bicycle will enhance the group's riding ability, reduce the risk of accidents or injuries, and aid in accomplishing the group's objectives. Understanding and acknowledging the safety risks pertinent to cycling encourages the participants to become

responsible for their own safety needs and the needs of the group in avoiding accidents. Knowing and accepting the parameters of cycling will aid in accomplishing the group's goals and in arriving at their destination as planned.

A cycling component to an outdoor program has unique aspects to it that set it apart from other common outdoor activities. A cycling program can accomplish the same programmatic goals consistent with the elements of experiential outdoor learning. As reviewed in this chapter, there are specific aspects of cycling, that when addressed and accommodated appropriately, can provide an enriching learning setting within an outdoor context.

Chapter 5

BICYCLING AS A MEDIUM

In this chapter the author will review several aspects of four cycling programs to demonstrate the versatility and effectiveness of cycling within an outdoor experiential learning process. The components of the programs will be reviewed to show their recreational and educational value. The author will examine the opportunities offered from these cycling programs for personal growth through cultural and environmental immersion into particular areas of travel. Presenting a variety of programs and program objectives will suggest the diversity within the cycling mode of accomplishing the goals and objectives of a learning process as reviewed in the previous chapters.

The four programs were chosen by the author for several reasons. First, they are programs that the author has been involved with familiarity with their components is from experience. Secondly, they are programs that exist well in an educational format, so justification and implementation within a school-based mode are attainable. Thirdly, the programs are meant to serve as examples of the growing variety of outdoor programs which use cycling as a medium to accomplish their desired goals and objectives.

The programs referred to are cycling programs which deal with 1) leadership and teaching skills in a university setting; 2) cycling as a recreational tool; 3) cycling as both recreational and educational; and 4) combining experiential and academic learning. These examples represent

a variety and versatility in programming ranging from a course involving eight to ten students to an organization that affects hundreds of participants per year; from non-academic outdoor programming to field tours taken for academic credit. Whether with recreational or educational focus, these programs utilize cycling as an outdoor activity to implement experiential learning.

Leadership and Teaching Skills in University Setting

Teaching Strategies in Outdoor Skills was a course designed and taught by Joy Hardin in the Experiential Education Department at Mankato State University. There was a need for developing leadership skills in students who did programming for the Outdoor Recreation Committee on campus, but who were not skilled in leading the outings planned. The format of the course focused on one weekend where the students shared their teaching skills with the group. The weekend took a trip format--the travel allowed the variety of sessions offered a workable, versatile environment. After exploring a number of options, biking seemed to be the best medium through which the group could connect their skill-sharing.

The course was designed to show students through planning, teaching and feedback that the individual could develop the skills to become a good or better instructor. Meeting with the instructor individually, the students selected an activity or skill they felt they needed to work on. The class meets as a group to discuss individual and course goals. Teaching or leading a session and getting feedback on the presentation or lesson were the important goals of the group (see Appendix A for specific purposes and requirements).

The focus is primarily on how cycling enhanced the course's

objectives and goals. The purpose in the weekend was not to participate in an outdoor activity, rather it was to work on teaching an outdoor skill. The skills included identifying wild plants, weaving, route planning, bike safety, decision-making, leadership, shelter-building and first aid. There was a need to connect the variety of skills and needs into the weekend format. The activity of cycling allowed for tangible skills like map and route planning and bike safety to be taught. The mode of travel with bikes allowed the group to be together while traveling. This encouraged group cohesiveness and sharing. It also allowed the group flexibility and ease in stopping to conduct a session. All of the skills contracted found a format for presentation and teaching, using biking as the medium that connected the skills within the group. Through focusing on the area of skill development, implementing it through a presentation or teaching situation and receiving support and feedback through debriefing each session, the student was experientially involved in her learning. Cycling became the tool in which this learning took place effectively. In this situation, cycling was not the focus of the learning, rather it was the medium through which the desired learning took place.

Cycling as a Recreational Tool

American Youth Hostel, Inc., a non-profit educational organization, supported by voluntary, tax-deductible contributions, membership dues and program fees. Established in 1934, it has served generations of its members by providing inexpensive, overnight accommodations, tours, travel information and related services. American Youth Hostel (AYH) encourages low cost travel world-wide for young people and adults through its system of youth hostels ("Highroads to Adventure," 1982:2).

Hostels are low cost dormitory-type accommodations where AYH members can sleep, bath, eat and share the companionship of fellow travelers. There are some two hundred sixty-six hostels in the U.S. and over five thousand hostels in fifty countries. From converted hotels to mountain lodges, hostels are the foundation or framework for a unique way to new experiences and adventure.

Hosteling means traveling under one's own power, by hiking, canoeing, etc., being self-propelled and self-sufficient, traveling in a simple, low-cost, fun way, using youth hostels as overnight accommodations. Hosteling can be done alone, with a group of friends or with a small, organized group.

As a recreational activity, hosteling can be a special kind of educational travel. It offers an individual the opportunity to experience the rewarding of hosteling through small group tripping. This is a chance to be part of a group which shared the responsibilities and the adventure of traveling in a small cooperative unit. Each group has one leader and seven to nine participants. The trips are planned in advance with flexibility for side-trips designed into the itinerary. In small groups, individuals become skilled in cooperative living, each bearing a share of the responsibilities while maintaining individual freedom (American Youth Hostels, 1981:27). Travel is informal and personal. While the individual is involved for the recreation of traveling and the adventure of seeing out-of-the-way places or well-known spots; the experience is also educational. The individual has an opportunity to challenge her perspectives, increase her awareness, and develop skills and knowledge while living and traveling with a small group in a new and exciting environment. Especially with international travel, the individual's perception of herself and

the world and her relationship with it can be greatly enhanced and enriched.

The trips operate on the "do-it-youself" principle, using cycling, hiking or canoeing, as not only the outdoor activity, but as the means for traveling to and through adventurous world-wide places. Recently the Educational Department of the AYH national office designed a new program called "Self Reliance Courses" (SRC). SRCs are two week workshop/tour type courses dealing with basic outdoor skills and may involve an educational theme. Along with learning the essentials of a particular activity, participants will also have an opportunity to experience a fun trip. AYH sees these SRC series as a bit "softer" than other survival skills courses offered by other programs. Combining a recreational mode with an educational theme allows for variety and versatility in promoting and implementing cycling as a skill, an activity, and as a mode of travel (Appendix B).

Cycling as Both Recreational and Educational

The Outdoor Recreation Committee (ORC) is a part of Mankato State University's Student Activities Department. In keeping with Mankato State University's mission statement which includes maintaining "an environment conducive to the humane development of those who participate in its community" and pursuing "excellence in quality of the campus environment by providing a setting rich in variety, excitement, and stimulation with activities that are comprehensive to the needs and interests of the students. faculty and staff" (Outdoor Recreation Committee Manual - Policies and Procedures, 1981-82), the ORC has adapted the following philosophies and purposes:

> The out-of-doors provides a non-pressure setting where personal and shared experiences in a variety of mediums provide the opportunity to:

1) acquire lifetime skills

2) realize our impact on the environment and increase our awareness

3) socially interact in a challenging but comfortable situation

4) learn team building skills

5) acquire leadership training through cooperative skills-sharing

The goals and objectives of the ORC are as follows:

- to expose outdoor recreation and its many facets and present obtainable options

- to provide a medium for social growth and development

- to foster personal growth and development in the belief that a by-product of natural awareness is self-awareness

- to promote environmental awareness

- to develop a comprehensive equipment program

(for further explanation and detail, see Appendix C)

The purpose and goals of ORC are accomplished through a variety of programming offered through several mediums. Recreational and educational formats are implemented with an experiential emphasis. Involvement is designed to be for students by students, with the necessary skills employed for enjoyable, safe participation. These mediums, formats, and involvements will be reviewed from a cycling perspective. Although other activities can be, and are, used to accomplish the same desired ends, the focus will be on how cycling enhances this learning process.

Outings and skills development courses are two options the committee uses to share knowledge and develop skills. The author will examine the purposes and planning for these from two perspectives: the benefit for the participant and the development of potential instructors/leaders for the committee. Outings, as defined by the committee, are designed to be informative, introductory events to a particular outdoor activity. For

the participant it is an opportunity to be exposed to local and regional areas of interest and recreation. It provides low cost or free one to two day excursions. And it is an introduction to riding and safety techniques. For the development of leaders/instructors, it serves as a beginning stage for their training. Guidance comes from experienced leaders either facilitating the outing with the new leader acting as assistant, or acting as a resource to leaders in implementing the outing.

The skills development courses usually involve a weekend time frame, although the planning could include longer periods of time in the field. The purpose is to give beginners a chance to practice their riding skills with the support and guidance of an experienced leader; to give experienced riders an opportunity to explore new routes or favorite rides with a group; to develop better skills in riding safely and with a group; for those planning an extended trip, it provides an opportunity to learn and practice the skills necessary for this type of travel, i.e. riding with packs, maintenance, riding with others, endurance; it is an opportunity to promote cycling and its components in a low pressure learning environment.

For trip leaders it is an opportunity to teach riding and cycling skills that encourage safe and recreational riding; to expose students to longer and varied riding situations; to utilize new or inexperienced leaders as assistants to increase their skills and knowledge in becoming better leaders; to use extended trips for enhancing and enriching social, historical and environmental awareness.

Other options, utilized by the committee in its programming, are the use of learn-abouts and workshops to expose the variety of aspects of cycling to the students. A learn-about is an informational program

ranging between one and three hours in length. The presentation is educational and informative. The subject is general and basic. With the use of displays, audio visual material, handouts, and local resource people as presentors, learn-abouts serve as a means to get the viewer or passerby acquainted with the subject matter. Whether it is a display of equipment used on a bike tour or an evening session on basic bike maintenance, the learn-abouts are educational for those who put the resources together to present and to those who take part in some aspect of the learn-about.

The bike repair class offered through ORC is an example of a workshop designed to offer hands-on experience in maintaining and repairing a bicycle. Offered in four sessions, the course teaches basic bike repair. The students work on their own bicycles and the skills taught are designed for in-the-field repairs. Because it is a beginning, basic repair class, the sessions start out with a general introduction to bicycles, the tools needed and instruction in flat tire repair. The following sessions deal with brakes, gears, and hub repair and repacking. Within this structure, there is flexibility for the class and individual needs to be met. Along with developing repair skills, the students, if interested, can expand their interest to other aspects of cycling through class discussions and student input and experiences. It is the author's experience that participation in the various aspects of cycling can be hindered or restricted by the individual's lack of confidence or skills in keeping their bicycle riding properly. Because of cycling's unique relationship between rider and equipment, acquiring the basic repair and maintenance skills are essential to successful tripping (see Appendix for details and further explanation of specific areas).

From the ORC's perspective, using cycling as an outdoor activity to promote its purpose and objectives fits in well with the structure they use. It can serve as a recreational tool to promote low cost local excursions. As a skills level activity, it provides in-the-field experience for both participants and leader. Using students to teach students encourages a well-rounded application of the principles and goals within the philosophy of Student Activities, specifically, and the Mankato State University community as a whole. Incorporating cycling in all the available formats encourages a well-developed, broad range exposure to the activity involving students on a variety of levels. From the beginner to the leader, from a handout to an extended trip, cycling within the structure of ORC encompasses learning through interest, commitment and involvement of students seeking to enhance or enrich their educational experience (see Appendix C).

Combining Experiential and Academic Learning

Bicycle touring in Europe is a course for credit offered through the May Seminar Department of Concordia College in Moorhead, Minnesota. As part of the physical education curriculum, the cycling course, developed by Vivian Wensel, professor and tour leader, encompasses a number of objectives that utilize the unique aspects of cycling as an outdoor learning experience within an academic environment. Along with the basic, common components of experiential learning, this course includes the opportunity for students to be involved in a total immersion in the cultures of the area being toured. This immersion involves the physical, intellectual, social and emotional perspective of the student. Besides the adventure, discovery and challenge of touring by bicycles, the

participants have an opportunity to be part of a lifestyle using a "low resource consuming vehicle".

These objectives are accomplished through a process of learning which encompasses a variety of methods. Attending a pre-seminar class where the students pursue areas of interest relating to the tour is one course component. Studing the culture and region to be visited, with presentation and discussion of material in the class provides the student an initial immersion to the student's involvement in this learning situation. Acquiring physical skills to enhance riding, learning to ride with a group, developing safe, efficient riding techniques are pre-touring elements the students work on. Along with learning basic maintenance skills, the students familiarize themselves with maps, routes, money exchange rates and various cultural events they will participate in. These pre-tour learning skills take place in a combination of classroom format, on-the-road, in-the-field practice, and independent study.

The final stage of implementing the course's objectives is the tour. Using pre-tour class material to enhance the on-hands experience, the students are involved on many levels. Besides being responsible group members contributing to the group process, the students involve themselves in their immersion into the cultural aspects of a particular area. This is accomplished through cycling through the region being visited, attending cultural events, touring historical sites, observing the people and places the students encounter, and reflecting on the similarities and differences in their cultural and personal perspectives.

This course is a creative way to involve students in an experiential learning process within an academic environment. Combining the components of the two learning modes provides a unique way to implement a

learning process that encourages student commitment and involvement in their learning. Pursuing the fun, adventure, discovery and challenge of touring by bicycle in Europe is a learning environment enhanced by pre-trip exploration and acquisition of pertinent and necessary group touring and riding skills. Acquiring academic knowledge heightens the student's personal observation and involvement in the cultural experience. The tour employs all of the pre-trip skill and knowledge acquisition in a fun, adventurous manner enriching the student's learning experience (see Appendix D)..

Summary

These four examples of using cycling as a means to an experiential process of learning are varied in structure and format. Yet, they all encompass the basic tenets of experiential learning and share common characteristics of outdoor learning. Utilizing and enhancing the unique aspects of the medium of cycling, the programs implement a process of learning which involves the participants through commitment, reflection and transfer of the experience. Whether on a local road or in the hills of Wales, the student is involved in a exploration of new perspectives and insights of herself and her environment.

Chapter 6

CONCLUSION

Experiential learning is a useful and useable educational tool in the process of acquiring knowledge and insight to one's experience. Experience alone is not beneficial; it is the combination of experience and the conceptualization of the experience that yields learning. Education is often defined as changes in behavior caused by experiences (Johnson and Johnson, 1975:316). The educational process is based on the human experience of movement from difficulty to resolution. After resolution comes reflection on the movement so that what is learned may be generalized and used again (Crosby, 1981:14).

Socrates believed that the student had something to contribute to their learning; that the process of becoming educated was the important thing, rather than arriving at a final static state (Crosby, 1981: 10). The learning process in an outdoor environment has great potential for changing behavior, stimulating interest in working towards a desired goal, and enhancing and integrating the experience. Choice is exercised, the mind and body committed, the consequences accepted (Webster, 1978:4). Outdoor learning combined with the components of experiential education creates a framework for analyzing the experience, forming new concepts or perspectives and submitting these new concepts to the test of experience.

As a medium to implementing experiential learning in an outdoor environment, cycling enables this process of learning in a variety of ways.

From a recreational framework to an educational format, it is a means to experiential learning. If one sees this as a strictly physical activity, justification and implementation within an educational environment may be limited. But if one sees it as part of a process of learning, emphasizing an experience/action-oriented curriculum or emphasizing group responsibility, cycling, as an outdoor activity implementing experiential learning, is a viable, versatile and valuable education tool (An Analysis of the Impact, 1971:47).

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APPENDIX A

COURSE HANDOUT FOR TEACHING STRATEGIES IN OUTDOOR SKILLS

TEACHING STRATEGIES IN OUTDOOR SKILLS

Experiential education Earn 2 credits
Graduate -- 51-635-01 ; Undergraduate -- 51-499-01

Unforgettable teaching and leading in the out-of-doors has been seen as an ability you're born with---or without. This course sets out to destroy that myth. Through actively teaching and taking leadership, class members will learn to "read the group" and set up learning experiences that will invovle participants. Personal styles of teaching will be explored, along with effective planning, timing, safety, and group interaction.

The format of the class is three-part:

between March 24-31	Schedule an one-hour individual meeting with instructor to clarify your goals, and decide on specific leadership area or skill to teach*
Wednesday, March 25, 4pm	Class meeting (one time only)
April 4-5	Weekend session (trip). Each member takes leadership role or teaches a skill, and gets specific feedback from class and instructor
May 8-10	Each class member presents a workshop at Outside/Insight, a regional conference (or for an alternative group)

Reflection on your own progress as a teacher/leader will conclude the course.

*examples of possible leadership areas or skills one might teach: Introduction/sharing...Initiative games...Decision making at point of several options...safety and risk considerations...Ropes course...Shelter building... raft building...oral history through interviewing ..canoeing with individuals with disabilities...planning a long bike trip...a feast of wild edibles... emergency care for bleeding...panning for gold.....

Joy Hardin, the instructor, has been fascinated with the process of people discovering their own power as teachers and leaders for almost 10 years. Her doctorate focused on women's outdoor leadership; since then, she has been facilitating leadership in the arts and the disability rights movement.

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Teaching Strategies for Outdoor Skills March 25, 1981

Purposes: Get in-depth strategies for one particular kind of workshop you would like to be good at presenting -

...For various kinds of participants
...For slightly varied purposes

* Identify several "thorny areas" of your own experience and get specific behaviorial feedback on your approach.

* Experiment with changing those behaviors you find associated with responses you DON'T WANT.

Add your purpose: what you want to be able to do as a result of the class.

Requirements: Meet with instructor and develop course contract BEFORE MARCH 31.

WORKSHOP DEVELOPMENT

*Lead one approach to your skill/interest for class April 4-5
*Investigate teaching approaches other's have used (library, interview) for your interest area.
*Identify the kinds of groups you would like to use this workshop with; and arrange for leading it (LOCALLY or in combination with Outside/Insight)
*Evaluate your workshop - what are your GOALS FOR SUCH A WORKSHOP How would you know if it was a success?

THORNY AREA OF TEACHING/ LEADING

*Identify an area of your own teaching or leading you want to improve: EXAMPLES: *how to get people to listen
*avoiding scapegoating
*environmental respect without resentment
*QUICK, SOLID group decisions
*safety awareness for group members
*fun ways to get people up and off and on the trail in the morning.

*Strength-train (a form of role-play) on this thorny area and experiment with new behavior.

EVALUATION

*Evaluate your own leading of your workshop and get participants to evaluate it.

*Attend Outside/Insight for one day and look carefully at teaching strategies employed by workshop leaders. Evaluate effectiveness on specific criteria (to be developed by group).

*Write a summary of what you gained as a leader/teacher from course.

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APPENDIX B

GUIDELINES FOR PROPOSING AN AYH
"SELF-RELIANCE COURSE"

AYH

American Youth Hostels, Inc.

National Administrative Offices
1332 "I" Street, N.W., Suite 800, Washington, D.C. 20005 • (202) 783-6161 • (800) 424-9426
Telex: 126592 Response: Icelandica NYK

GUIDELINES FOR PROPOSING

AN AYH "SELF RELIANCE COURSE"

INTRODUCTION

Enclosed you will find some promotional material which should give you a better idea of what an AYH Self Reliance Course (SRC) is like (See Highroad to Adventure, P. 14). For the sake of continuity among various Courses in the SRC program, all Courses are to incorporate the following features:

I. Subject matter of all Courses is to be genuinely educational in nature.

II. All Courses should be built around instruction in one or more basic outdoor skill(s)/recreational activity., e.g. cycle touring, canoeing, cross country skiing, hiking, etc.

III. Along with this primary emphasis on instruction in outdoor skill(s)/ recreational activity, Courses may involve additional educational themes or topics if the Instructor so decides., e.g. regional history, marine biology, geology, cultural anthropology, etc.

IV. All Courses are to be proposed, planned, and conducted by a trained AYH National Leader.

V. For the pilot year of 1982, all Courses will be approximately two weeks in length.

VI. For the pilot year of 1982, all Courses will be held within the United States or Canada.

VII. For the pilot year of 1982, all Courses will be open to enrollment by participants age 14 years and older. NOTE: Course participation may be limited according to age if the Instructor can sufficiently exhibit that the Course subject matter and structure necessitates such limitations.

VIII. For the pilot year of 1982, all Courses will consist of a maximum of nine (9) participants and one (1) Instructor. NOTE: Class size can vary if the Instructor can sufficiently exhibit that the Course subject matter and structure necessitates such limitations.

Founded 1934. Member of International Youth Hostel Federation. A non-profit association organized as a community service to provide year-round opportunities for outdoor recreation and inexpensive educational travel through hostelling.

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IX. In order to maintain a uniform blend of enjoyment and education, all Courses should attempt to be structured timewise so that the "teaching" portion (i.e. lectures, demonstrations, audio visual presentations, etc.) of the Course is concluded within the first of the two weeks. If possible, the second week should be "phantom" in structure, allowing the group to decide what they would like to do and where they would like to go. This second week of the Course should act as a final providing ground for their newly learned skills while providing the crucial "vacation therapy" unique to SRC.

X. To further enhance the blend of enjoyment and education, the Lesson Plan for the first week should be structured, if possible, so that the teaching proper only takes place every other day. The alternating days of the first week should be spent on the road, trail, river, etc. so that participants have a chance to practice what is being taught and that the "classroom" (hostel, camp, etc.) may change with every lesson.

XI. If practical, Courses should be located in relatively popular tourist areas which also allow for the use of hostels in the program. By locating the Courses in such significant areas, it is hoped that the vacationing aspect of a Course will be enhanced.

XII. The style of lesson presentation (i.e. Lesson Plan) is largely left to the design of the Course Instructor. SRC lessons are to be as participatory, entertaining, enjoyable, low-risk, and creative as possible. The use of audio visuals and guest presenters is strongly encouraged.

XIII. For the sake of inter - as well as intra - disciplinary standarization, all Courses will involve modules dealing with the following topics:

A. Safety and Basic First Aid as it relates to the Course topic(s).

B. Environmentalism/Minimal Impact Conduct as it relates to the Course topic(s).

C. Equipment Design and Selection.

D. Equipment Maintenance and Repair.

E. Tour/Excursion/Expedition Planning as it relates to the Course topic(s).

F. Training and Conditioning as it relates to the Course topic(s).

G. Hosteling as it can be incorporated into the specific outdoor recreational activity being studied as well as outdoor recreation in general.

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The manner and degree in which these required modules are dealt with is left to the design of the Course Instructor and are subject to prior approval by the AYH Education Department. NOTE: Instruction of required modules can be deleted from a Course Lesson Plan only when the Course Instructor can sufficiently exhibit that the Course subject matter and structure facilitates such deletion and only then with prior approval by the AYH Education Department.

XIV. Elective lesson modules are encouraged to compliment the required modules. The topics and deisgn of such elective modules must also meet prior AYH approval. Through such elective modules, supplemental educational themes like those mentioned in III (above) may be incorporated into a Self Reliance Course.

XV. The use of teaching aids (films, slides, guest speakers, etc.) is recommended. The use of a selected text book or books is required and is to be provided to each participant as a part of the Course fee. The required text for the Course is to be selected by the Course Instructor, preferably from the AYH book sales list, and is to be approved and purchased through the National office. NOTE: Other supplemental teaching aids, including recreational equipment, may also be available through the National office.

XVI. Uniformity in structure and standardization of quality will allow AYH National to present each participant completing a Self Reliance Course with a Certificate of Achievement.

XVII. The amount of the Course fee paid by participants will vary between Courses in different disciplines. Course fees will largely be determined by the Course Instructor in planning the Course, but will be subject to approval by the AYH Educational Department. Course fees are to be kept at the non-profit level in accordance with the guidelines of the SRC program.

SUBMITTING A COURSE PROPOSAL

Any person having completed a National AYH Leadership Training Course is eligible to submit a Course Proposal for a Course he or she would like to offer through the Self Reliance Courses program.

From these Proposals, the staff of the AYH Education Department will select the Self Reliance Courses to be offered to the public. The number of Courses offered will vary annually, depending on the resources available with which to administer those Courses.

The authors of approved Proposals will be given the opportunity to enter into a Course Agreement with American Youth Hostels, Inc. The Course Agreement will contract with the author for the further planning, promotion, and execution of the approved Course. Initial details of this agreement are outlined below.

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A Course Proposal is a simple prospectus or overview of a Self Reliance Course one would like to plan and conduct. The information contained in the Proposal should be complete enough so that the Educational Department staff can determine whether the proposed Course concurs with the nature, purpose, and calender of the SRC program.

Course Proposals should be submitted in writing to: American Youth Hostels, Inc., National Administrative Offices, Education Department, 13332 "I" St., NW Suite 800, Washington, DC 20005. All Course Proposals must be received no less than five months prior to the proposed Course date. All Proposals will be approved or rejected within three weeks of their receipt.

Please reread the introductory section above in order to insure that your Proposal meets with the basic SRC regulations. You are free to include as much and as detailed information in your Course Proposal as you desire, but all Proposals should contain the following:

Location
Dates
Length (number of days)
Class size (if other than nine, explain why)
Age of participants (if other than 14 years and older, explain why)
Course Objectives (what topics you will be covering and to what degree)
Required Modules (can they be dealt with?)
Elective Modules (if any)
Day by Day Itinerary (brief overview of the Course schedule and overnights)
Teaching Aids (books, films, speakers, etc. which you might use)
Approximate cost per participant (* below)
Personal Resume (briefly tell of any training, certification, or experience which specifically qualifies you to instruct the proposed Course)

* The per participant cost cited in your Proposal is to be a rough approximation. The figure is to reflect the actual "cost", and not the "price" which the participants will actually pay. The approximate cost per participant should include estimates of transportation, accommodations, food, miscellaneous (entertainment), and Course materials (equipment, books, films, etc). Please give an approximate breakdown of costs by each of these categories. AYH will judge the accuracy of your costing, and will calculate a proposed price by taking into account administrative costs and the remuneration and honorarium given to Course Instructors. A breakdown of the proposed price will be given in the Course Agreement.

RESPONSIBILITIES OF COURSE INSTRUCTOR

Following approval of a Course Proposal, the Proposal's author will be given the opportunity to enter into a Course Agreement with American Youth Hostels, Inc. The Agreement will specify that the author is to become the Course Instructor of the approved Course, if indeed the Course actually takes place.

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Within one month of the Agreements signing, the Instructor must supply AYH with a detailed itinerary and lesson plan for the Course. The itinerary will give the name, address, telephone number, and price of all suggested overnight accommodations. The itinerary will also outline possible options for the group during any phantom portions of the Course. The detailed lesson plan will outline how topics will be covered, and will include lecture notes, demonstration plans, discussion topics, and names of films and guest speakers. These itineraries and lesson plans are subject to review, alteration, and approval by the AYH Education Department.

Prior to the start of the Course, the Instructor is to act as an agent on behalf of AYH in the local promotion and publicity of his or her Course.

During the Course, the Instructor will be required to keep an accurate day by day journal of the Courses' progress. After the Course, this journal and a final report on the Course must be submitted to AYH. These and all other Course materials prepared by the Instructor will become the property of American Youth Hostels, Inc., which may use them at any time and in any way it sees fit.

COURSE INSTRUCTOR BENEFITS

A Course Instructor will receive a remuneration in accordance with the remuneration policy adopted by the AYH National Travel Program (see enclosed literature). Additionally, Course Instructors will receive an honorarium for planning and conducting the Course. The amount of this honorarium will vary depending on the cost of the Course and the number of participants. Roughly, the honorarium will be 10% of the cost of the Course. An exact proportional amount for this honorarium will be specified in the Course Agreement.

RESPONSIBILITIES OF AMERICAN YOUTH HOSTELS, INC.

American Youth Hostels, Inc. is to play a role in coordinating, standardizing, and promoting the Self Reliance Courses program.

The staff of AYH is charged with the responsibility of insuring that all Courses offered in the SRC program meet with the standards and purposes of the program and AYH as a whole. AYH staff will supervise Course Instructors in the palnning and execution of approved Courses.

AYH will work to actively promote and publicize on the national level those Courses offered under the SRC program. Moreover, all Course fees will be paid directly to the National Office of AYH, and all applications and monies will be processed and held there prior to the start of the Course.

AYH will provide all Course participants and Instructors with accident and sickness insurance during the Course. Additionally, Course Instructors will be covered by the blanket liability insurance policy carried by AYH.

AYH staff will arrange for the confirmation and/or reservation of Course equipment rentals and purchases, overnight accommodations, and group transportation once such arrangements have been proposed by the Instructor and approved by the AYH Education Department.

American Youth Hostels, Inc. will provide the Course Instructor with Certificates of Achievement to be presented to Course participants upon completion of a Self Reliance Course.

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APPENDIX C

OUTDOOR RECREATION COMMITTEE PROGRAMS AND OBJECTIVES

OUTDOOR RECREATION COMMITTEE
GOALS AND OBJECTIVES

TO EXPOSE OUTDOOR RECREATION AND ITS MANY FACETS AND PRESENT OBTAINABLE OPTIONS

- -to expose MSU students and faculty to recreational opportunities available locally that are within walking distance or a short drive
- -to continue development of the outdoor resource center
- -to provide an alternative to the "bar scene" and indoor activity
- -to make use of communtiy resource people and places
- -to create indoor environments in our learnabouts that stimulate interest in outdoor activities

TO PROVIDE A MEDUIM FOR SOCIAL GROWTH AND DEVELOPMENT

- -to socially interact with new people in a challenging yet comfortable atmosphere
- -to learn team building skills through cooperative skills sharing
- -to set up a network of professionals, friends and students in outdoor related fields
- -to facilitate group process and interaction

TO FOSTER PERSONAL GROWTH AND DEVELOPMENT IN THE BELIEF THAT A BY-PRODUCT OF NATURAL AWARENESS IS SELF AWARENESS

- -to expose participants to new experiences
- -to increase perceptions, our physical and mental awareness of our surroundings
- -to learn new skills that enable students to be more self reliant
- -to teach organizational skills
- -to teach basic skills that enable students to pursue activity further
- -to build confidence and self esteem
- -to provide for physical development
- -to provide a medium to recharge and energize the individual
- -to provide leadership training

TO PROMOTE ENVIRONMENTAL AWARENESS

- -to become more aware of natural processes and their importance to us
- -to recognize the impact that each of us has on our environment and seek ways to minimize that impact
- -to promote an attitude of stewardship that is reflected in the attitudes of group leaders

TO DEVELOP A COMPREHENSIVE EQUIPMENT PROGRAM

- -to develop educational materials concerning proper care and use of equipment
- -to provide basic repair and maintenance instruction courses
- -to demonstrate an attitude of concern for equipment
- -to provide consumer information about outdoor pursuits

PROGRAM OBJECTIVES FY 81-82

OUTINGS:

-continue local and regional excursions to inform students of recreational opportunities close by
-local and regional excursions usually are interpretive in nature, designed to increase perceptual awareness
-build up a file of local possibilities
-make use of local resource people to share skills
-subsidize local transportation costs

SKILLS DEVELOPMENT COURSES:

-use professional fees to:
  1) provide basic skills instruction
  2) maintain and educate safety aspects of outdoor activities
  3) provide leadership training for student assistant trip leaders
- offer students opportunity to take an active part in planning the experience rather than have it provided for them
-offer extended courses including weekends, breaks and summer trips

LEARNABOUTS

-develop educational displays and programs concerning outdoor activities
-produce audio visuals to supplement programs and provide self-instructional information
-make use of students and local resource people for presentors
-produce informational handouts

WOMEN OUTSIDE

-develop resource material
-provide network informaiton with Women in the Wilderness and Woodswomen (national and regional organizations)
-organize monthly gatherings for local women
-provide leadership opportunities through cooperative skills sharing

ARMCHAIR ADVENTURES

-develop resource files of possible presentors-local and national
-provide weekly winter time program
-co-sponsor program with other student activities committees
-develop resource file on films relating to outdoor activities

NEWSLETTER

-keep in contact with past members and participants
-include visual and written materials that give a better idea of programs than records
-to provide a year-end summary of ORC experiences

RESOURCE CENTER

-produce video tapes on equipment care
-expand files - more information on national parks and forests, consumer equipment, etc
-produce local resource maps and handouts on:
  canoe routes
  x-c ski trails
  bicycle routes
-design trip board
-design educational displays
-have topo maps for check out
-expand outdoor library

PUTTING YOUR BIKE TO BED
Wednesday, October 19, 1981
5pm The Joint

CHECK BIKE OVER FOR REPAIR NEEDS

Does it need cleaning?
Are there adjustments that need to be done?
Should it be regreased, oiled and lubed?

WHAT NEEDS TO BE REPAIRED?

Check the tires for wear, cracks, or holes.
Are there sticky or rusty cables?
Is the tape on the handlebars in good shape?

WHAT WORK CAN YOU DO, AND WHAT DO YOU NEED TO LEAVE FOR A BIKE SHOP TO DO

Minor work - such as general cleaning, basic check over for repairs, and storing the bike properly can usually be done by anyone.

If you want to try to do some basic repair on your own, and know very little about it now, get a good book on repairs and settle in for a winter's worth of learning and exploring about your bike.

Major work- such as wheel work or rebuilding, repacking the hubs, bottom bracket work, painting the frame, should be left in the hands of a trusted mechanic and winter is a good time to take it in. If your shop does bike work in the winter, this is the time to take it in. They have slowed down from the summer and can devote better time to your biking needs.

STORING YOUR BIKE OVER THE WINTER

Inside - preferabley hang it by a hook
deflate tires

Outside - cover completely
(tires will deflate on their own in cold weather)

POINTS TO REMEMBER:

- it is better to do your needed repairs now than wait until the spring.

bike shops are usually booked up with repairs starting in March or April, so in order to be able to use your bike come spring and not be on a waiting list for repairs, do it now.

- don't store your bike until you are sure you want to put it away. There are still a number of nice riding days to come this fall!

- go over your bike for a thorough checkover and get those repairs done now.

most repairs can be kept at a minor, periodic adjustment level. But ignoring or neglecting needed repairs can result in more wear or damage and higher repair costs.

** Springtime thoughts can be used even in the Fall!!

Springtime** Bike Check-Up

Trouble-Shooting Your Bike in Ten Easy Steps

Susan Weaver, with Len Vreeland

Bicycle maintenance is important year-round, but particularly important is the spring check-up. Now is the time to diagnose problems and make the repairs you meant to do at the end of last season. Before you begin, if you had a lazy attack and put the bike away dirty last season, clean it with a damp rag; use grease solvent such as kerosene for stubborn spots. The rest of the check-up will be pleasanter on a clean bike, not to mention the wear you save on your machine.

Tires: Examine the outer casing, tread, and sidewalls, removing any imbedded bits of glass and stone. Small nicks you can repair yourself: fill in with a latex or rubber compound to prevent further splitting or rot caused by wetness.

Look for any deformities in the tires. An S-shaped curve means the cords inside might have been cut from hitting a pothole. Time to replace the tire, or, if you have wired-on tires and are really cost-conscious, you could prolong the tire's life by putting in a liner cut from an old tire. Be sure you do something, though, or you'll be chancing a blowout.

Check tire pressure.

Wheels: Look for dents and lateral deformities; feel for broken spokes with your fingers. If you have only minor damage, you may be able to correct it yourself. If the wheel is more than a little out of true, it could cause inefficient braking and tire wear: take your bike to the shop for a new rim.

If wheels are fastened on with nuts, check tightness with a wrench. If wheels are quick-release type, check to see that the quick-release levers are snug in the closed position.

Test wheel bearing adjustment front and rear. Front: Immobilize bike by holding the handlebars with one hand and grasping tire rim from underneath at the top of the wheel with the other hand. Try to move wheel from side to side. If it seems to have any more than just a little side play (movement), the wheel bearings should be checked at your bike shop. Repeat procedure for rear, grasping the saddle with one hand, tire rim with the other.

Brakes: If yours are *caliper brakes*, inspect the brake cables for broken strands or fraying where cable enters the brake lever and also where it fastens to the brake. Damaged cables should be replaced.

Spray lubricant into each end of the brake cable casing.

Check for excessive brake shoe wear: if nubs or ribbed blocks on shoes are worn way down, it's time to replace them. When replacing these, be sure

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the bevel of the brake shoe fits the shape of your rim. Adjust the shoes by taking slack out of the brake cable so there is minimum clearance between shoe and rim.

With caliper brakes, if you have a quick-release brake mechanism, at front and rear brake cable hangers check to make sure the mechanism is in a closed position.

Check the brake center pivot bolt by gently attempting to move the bolt front to back. If loose, tighten with the wrench.

If you have coaster brakes, test them by actually riding the bike and applying brakes. There should be only three or four inches of pedal rotation before brake mechanism is activated. The same rule of thumb is true for engaging the drive mechanism: test this by pedaling forward. If too much pedal rotation is required, you could have a worn or broken part in the rear hub, or a problem with the chaining where it fastens to the crank arm.

Handlebars and Stem: Hold the front wheel firmly between your legs and gently try to twist the handlebars left and right. If they move, the stem is loose and needs to be tightened.

Then try to move the handlebars up and down. If you have movement here, the handlebars need tightening.

Headset Bearings: Stand beside the saddle of the bike, facing almost forward. Hold bike firm by leaning on the saddle with your diaphragm and squeeze front brake lever tight to brake bike. Attempt to rock the bike back and forth to see if there is any play in the headset bearings. If so, it needs attention.

Pedals and Cranks: Grasp the crank to hold it firm; wobble the pedal back and forth to make sure pedal is secure and bearings are properly adjusted. Play should be minimal. Spin pedal to be sure it rotates freely. If it doesn't, have the bike checked. You may have a bent pedal spindle; this should be serviced or pedal(s) should be replaced.

Check the cranks. Grasp bike to hold it still. Attempt to wobble pedal cranks from side to side. If there is more than minimal play, this needs correcting.

Gears: If your bike is *internally geared* (three-speeds and some four- and five-speeds), first check the gear shift control to make sure it's securely fastened to your bike. Examine the various points where the cable is secured along the frame; make sure these fulcrum points are firmly attached. Inspect for broken or frayed gear cables; have any damage repaired. Shoot some lubricant into gear cable casing.

If the shift control and gear cables check out okay above, check the gear adjustment as follows. Prop bike so the wheel rotates freely. Pedal in various gears. If there is any slippage, you may have problems within the hub. Have the bike shop check it out.

Squirt a few drops of light oil into oil nipple on rear hub.

For bicycles with *derailleur gears:* Check gear cables for fraying and breaking at front and rear derailleurs and at levers. Have necessary repairs made. Lube cable.

Next test the tension on gear shift lever screws. Prop the bike so that rear wheel rotates freely. Put the bicycle in gear and rotate pedals. Watch the gear lever to see whether bike slips out of gear by itself. If it does, the tension on gear shift lever screw is too loose; tighten *slightly*. Don't over-tighten.

Now move the pedals backward and watch for a stiff link in the chain. To remedy, flex chain gently back and forth toward the center line of bike with your thumbs.

Then with the rear wheel propped up, rotate pedals and shift through gears to make sure it shifts properly at the front derailleur. If chain slips off the chainring, derailleur adjustment may be needed, cage could be misaligned, or chainring could be out of true. Or it could just be that you have bent teeth in the chainring. But if remedying this doesn't resolve the problem, take your bike to a qualified mechanic.

Repeat the procedure for the rear derailleur. If the chain slips off either the smallest or the largest sprocket, this could result from a bent rear stay, a bent tooth on the sprocket, or the need for a rear derailleur adjustment.

Saddle: Try hard to twist it up and down, left and right. If it doesn't move, it's secure.

Lights: Make sure generator or batteries work.

Miscellaneous: Check to see that fender and bicycle bag do not rub against tire.

Look the bike over to be sure nothing is hanging loose, is cracked, or offers a sharp edge which could cut you if you fall.

Repeat maintenance check periodically during the season, and especially after a long or hard ride. Any time that your bicycle may have been subject to handling by others, check to be sure any quick-release mechanisms (wheels, brakes) are firm in the closed position.

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ST. CROIX BIKE RIDE
INTERSTATE STATE PARK
MAY 29-31, 1981
Limit: 15

COST: $20 (includes leader's fee, transportation and camping fee plus food) doesn't include rentals.

HANDOUTS: Maps and rules of the road
Equipment list

REGISTRATION: Limited to 15. Deadline to sign up is May 15, 1981.

PRE-TRIP MEETING: May 26, 1981 5pm Rm 255A.

EQUIPMENT: Bike (can be rented)
Pump and tire repair kit
Group gear provided: tent, stove and cook kit.
Essential individual gear: sleeping bag/pad
water bottle
2 pair of pants/shorts
wind or/and rain protection
t-shirts
change of socks/shoes
sunglasses
eating and toilet gear
optional gear: camera
riding gloves
hat
sun protection

We will be camping at the Interstate State Park and cycling in Wisconsin on the St. Croix Bike route Saturday and Sunday. The park has camping facilities and showers. We can leave our gear in the van during the day. We will need to take wind protection, pump, water bottle, food cameras, etc. with us on our day riding. Saturday we will ride the full route of 21 miles. Sunday we will cut 6 miles off by going on alternative route with time to spend relaxing back at the park. We will buy our food when we get to the site and will carry out lunches with us riding. Breakfast and supper will be at the park site. At the pre-trip meeting we can talk more about this.

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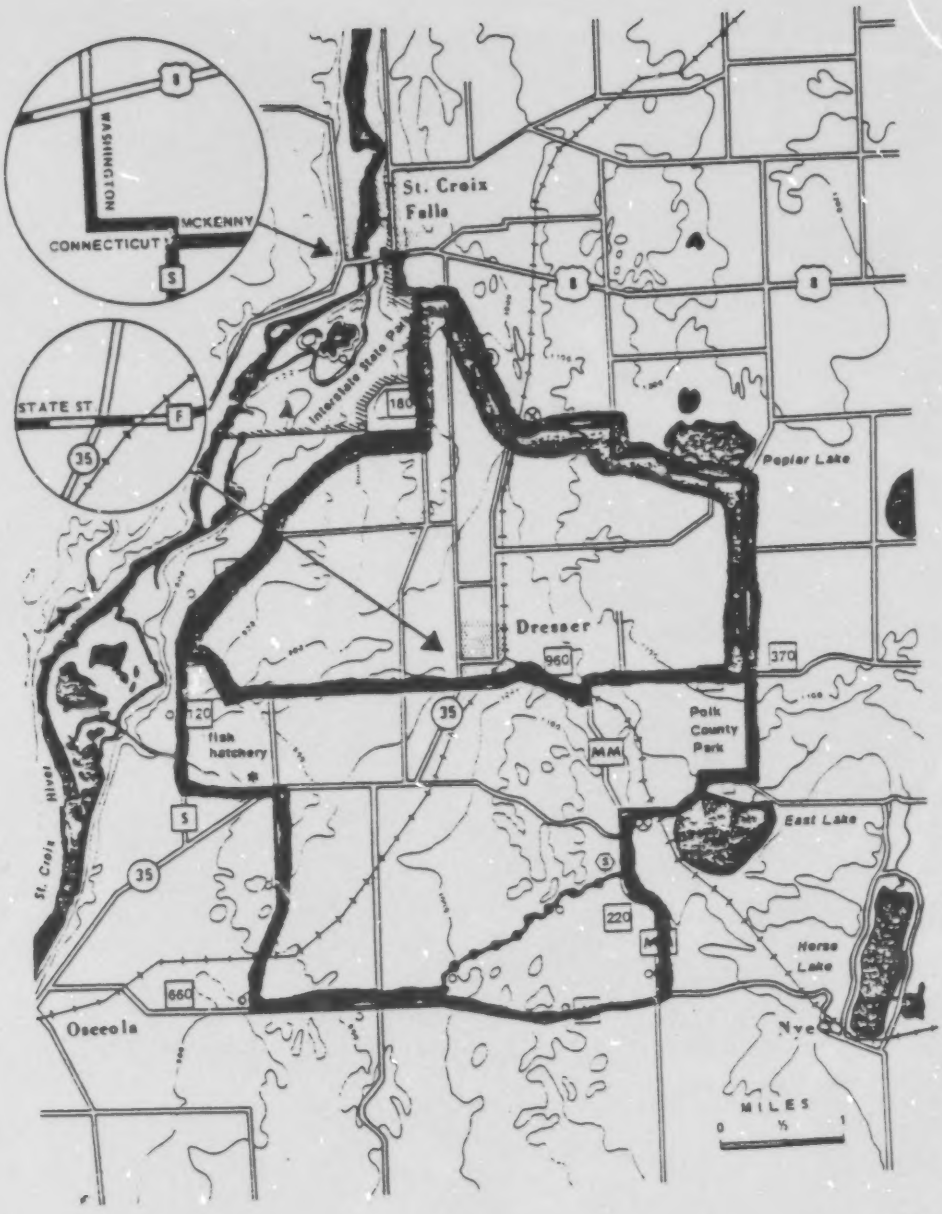

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ELROY - SPARTA BIKE RIDE
WISCONSIN
MAY 21-23
Limit: 8

COST: $25 (includes transportation, camping and trail fee, food and leader's fee) doesn'e include rentals.

HANDOUTS: Maps and equipment list.

REGISTRATION: Limited to 8(plus 2 leaders) Deadline to sign up is May 15, 1982

PRE-TRIP MEETING: May 13, 1982 4pm rm 203

EQUIPMENT: Bike (can be rented)
Pump and tire repair kit
Group gear provided: tent, stove, and cook kit.

Essential personal gear: sleeping bag/pad
water bottle
rear panniers
handlebar bag
individual gear: 2 pairs of pants/shorts
wind protection
sunglasses
sweater/sweatshirt
t-shirts
change of socks/shoes
rain gear
personal articles
eating utensils
flashlight
optional gear: riding gloves
camera

We will be camping Friday night at a campground at Sparta. It is a primitive campground with water and toilets. Saturday we will ride the trail to Elroy, where we will spend the night at a campground there. Sunday we will ride back to the van at Sparta. The trail is 32 miles one way, with 3 tunnels and numerous scenic towns and villages along the way. There will be time to stop and browse, relax and enjoy this delightful ride.

This trail is all off road riding. A delight for all levels of riders. We will be riding with panniers in order for participants to experience touring conditions on a fun, easy weekend ride.

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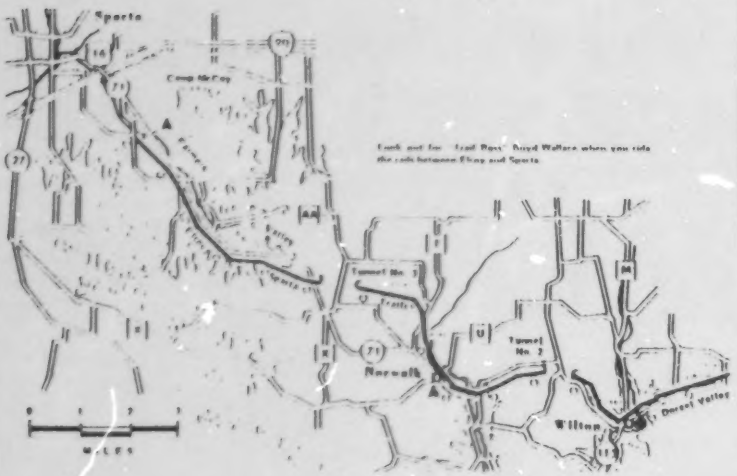
Elroy-Sparta State Trail Ride



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BICYCLE TOURING EQUIPMENT CHECKLIST

DAY TRIPS

___ Water bottle
___ Tool kit
___ Seat or handlebar bag
___ Maps
___ Jacket/windbreaker
___ Energy snacks
___ Light for night travel
___ Lock
___ _____

BICYCLE TOOL CHECKLIST

___ Tire pump
___ Patch kit or spare tube
___ Tire irons
___ Crescent wrench 4" or 6"
___ Small screwdriver
___ Pliers
___ Allen wrenches (if needed for handlebare stem or cotterless cranks)
___ Spare bolt/nuts (for carrier racks, etc.)
___ Spare derailleur cable
___ Spare brake cable
___ Small piece of wire/string
___ _____

For extended trips:

___ Chain link remover
___ Freewheel remover
___ Spare spokes/spoke wrench
___ Small amount of grease
___ Extra bearings
___ Extra tires (in remote areas or foreign countries
___ _____

EXTENDED TRIPS

___ Rear carrier rack, solidly mounted
___ Panniers
___ Front handlebar bag
___ Sleeping bag, if camping out, or sleeping sack (AYH)
___ Tent, tarp or bivouac sack
___ Foam pad or air mattress
___ Rain gear: bike poncho or rain suit
___ Comfortable shorts or cycling shorts
___ T-shirts or cycling jersey
___ Extra socks
___ Extra shoes if using cycling shoes
___ Underwear
___ Jacket/sweater/warm shirt
___ Long pants for cool weather or foreign travel
___ Cyling gloves or gloves for cool weather
___ Sunglasses/suntan lotion
___ Hat with visor or helmet
___ Stove, if cooking out -- butane cartridge stoves are light and convenient in warm weather
___ Spoon, bowl and or small cookkit
___ Knife
___ Small flashlight -- a bicycle light or leg light can double as a camplight
___ Extra water container (collapsible) for hot weather or desert climates
___ Insect repellent
___ Camera/film
___ Small notebook/pad
___ Small first aid kit -- asprin, bandages, sewing items, etc.
___ Toothbrush/comb, etc.
___ Shock cord or nylon cord
___ Passport, phrase book for foreign travel
___ Water purification tablets for remote areas
___ _____

This list taken from a Midwest Mountaineering suggested checklist. It is to serve as a guideline to equipment needs. Depending on type of area traveled and length of time on the road, this list will vary.

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BIKE REPAIR CLASS

CLASS #1

Display books, magazines, catalogs of current bike literature

Display tools:

Category A- 6" adjustable wrench
standard screwdriver
phillips screwdriver
wire clippers
pliers
WD-40
can of oil
patch kit
tire irons

Category B- 8/9/10mm y wrench and/or
8/9mm & 10/11mm opened wrench
chain rivet extractor
third hand brake tool
13/14mm & 15/16mm cone wrenches or spanniers
hex wrenches (either 6 or 7mm)

Categroy C- freewheel remover
crank remover
spoke wrench
bottom bracket tools
headset tools

I. Talk about problems and causes of flat tires

a. low air pressure
b. worn tires picking up glass
c. tubes with too many patches
d. spokes poking thru tube

II. How to determine what is causing flat tire

a. is the hole on the top or side of tube?
(puncture is caused by object picked up on the road)
b. is the hole on the bottom of the tube?
(puncture is caused by spoke poking tube or the rim band could be broken causing the tube to be pinched by the inside of the rim)

III. How to fix a flat tire

a. remove wheel from bike
1. if bike has standard nutted axles, use a wrench to remove.
2. if bike has quick release axles, release and remove.
b. deflate any air left in tire
c. check tire for objects sticking into tire
d. using two tire irons, insert them opposite the valve stem.
e. work off one side of the tire
f. turn wheel around, insert tire irons and pry off tire from rim.
g. inflate tube till firm, listen, feel, or look for leak (can use water if available)
h. applyglue after area has been roughed up, when glue has dried, apply patch. rub patch in hard with hand making sure all sides are sticking.
i. pump up tube slightly, checking patch adhesiveness.

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IV. Putting tube and tire back on rim

a. put tube into tire
b. starting at the valve stem, work on one side of tire.
c. turn wheel around and start working on the other side of tire.
d. when tire is on completely, check to see if the tube is sticking out anywhere. (this can be a difficult job to do, depending on the tire, so encourage patience and determination but not brute force).
e. if tube is sticking out, or bead of tire is not sitting in the rim, work them into their place gentley.
f. do not use tire irons on this phase of fixing a flat. it can cause a puncture in tube when putting tire back on rim.
g. inflate tire to proper tire pressure, and put wheel back on bike. (if it is easier to put wheel on first and then inflate, do this)

This is a good first class because it introduces the student to the world of biking through books and magazines, and they begin repairing their bike with an item that all bikers come across sooner or later, ie flat tires. Learning how to fix a flat tire is probabley the most useful repair they will learn, considering the frequency of flat tires. It also can be a rather difficult repair to make, if one does not know how to do it properly. It is also a good first class repair lesson because most students come feeling anxious about their ability to fix their bikes and learning how to do something on their bikes the first lesson is usually a positive experience, making the way for more in depth and detailed repairs in later lessons.

I usually spend some time going over the expectations of the students and sharing with them my expectations. I have given a pre-class questionnarie to determine if their expectations have been meet by the end of the class. This way I can find out where their abilities are and if I am gearing the class to their needs. And when I compare the pre with the post class evaluation, I can determine how the needs and expecatations of the class were met.

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BIKE REPAIR CLASS

BRAKES

I. Identify and locate parts
   a. brake lever
   b. brake extension levers
   c. cable and housing
   d. brake
   e. shoes
   f. yoke
   g. hanger bracket front and rear

II. What goes wrong
   a. cables stretch
   b. shoes are worn
   c. cable breaks
   d. frozen cables
   e. wheels are out of alignment

III. Disassemble/Assemble
   a. put third hand on brake
   b. with 8/9mm loosen yoke
   c. release and pull cable out of housing
   d. examine housing cable
   e. examine all parts
   f. put cable into housing, thread it through system
   g. attach cable through yoke, tighten
   h. take off third hand
   i. squeeze brake for snuggness

TOOLS NEEDED

adj. wrench
8/9mm & 10/11mm wrenches
pliers
cutters
third hand

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BIKE REPAIR CLASS

Gears and Shifting

I. Identify part and what they do
   a. front derailleur
   b. rear derailleur
   c. shift levers
   d. gear cable & housing
   e. chainwheel
   f. chain
   g. freewheel

II. What goes wrong
   a. 'frozen' cables
   b. overshifting
   c. bent derailleurs
   d. worn parts

III. Disassemble/Assemble
   a. put chain on small cog in rear, large cog in front or so the levers are in their tension free position.
   b. release cable from derailleurs
   c. pull cable free from housing
   d. inspect parts
   e. clean parts
   f. reassemble reversing what has been done
   g. tighten cables going into derailleurs
   h. derail chain to check tighteness of cales

IV. Adjustments
   a. set screws for chain alignment
   b. eye up adjustment
   c. listen for proper alignment
   d. shift chain through all gears, especially watching for the top and lower cog positions.

V. Chain
   a. disassemble using a chain tool
   b. clean and inspect for wear
   c. oil and reassemble.

TOOLS NEEDED

screwdrivers
pliers
cutters
8/9mm 'y' wrench and/or open-ended wrench
lube
chain rivet extractor
oil and solvent

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BIKE REPAIR CLASS

Repacking Hubs

I. Identify parts
   a. hub
      1. low flange
      2. high flange
   b. axle
      1. straight or solid axle
      2. quick release axle
   c. cone
   d. lock washers and nuts
   e. bearings
   f. dust caps

II. What goes wrong
   a. axle binds
   b. cones are loose
   c. grinding or gritty sound in hub
   d. broken axle

III. Disassembley (rear wheel) - Assembley
   a. remove wheel from bike
   b. remove freewheel
   c. using 15/16mm spannier or cone wrench - loosen one side of axle (preferableyside opposite of freewheel)
   d. remove nut, washer, cones, and tip wheel to remove bearings
   e. count, inspect and clean bearings
   f. clean all parts, inspect for wear
   g. place grease in hub, put bearings in one side, do the same on the other side.
   h. replace cone, washer, nut - tighten
   i. clean, oil and replace freewheel
   j. put wheel back on bike

TOOLS NEEDED
13/14 mm and 15/16 mm cone wrenches or spanniers
adjustable wrench - 6"
grease
solvent and lube opt. freewheel*

Instruction are for the rear wheel. The thinking behind this is that if the student can do the rear wheel, they can transfer their knowledge to the front wheel. If the freewheel can not be removed, instruct the student to remove the nut, washer, and cone from the axle side opposite of the freewheel and take precaution in removing the bearings. Sometimes the bearings on the the freewheel side are difficult to remove and a screwdriver or solvent can be used to get the bearings to fall out. When putting the bearings back in, encourage patience and care. It may seem clumsy but it can be done.

* it may be more economical and effecient to take the wheel to a bike shop and have them remove the freewheel. It is a simple procedure and should cost little or nothing. And depending on the freewheel, the cost of the tool could make it uneconomical to purchase. No tool is needed to put freewheel back on.

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This is a collection of the handouts to be used in the repair class. The first handout is a list of repairs that will be taught during the four class sessions.

(it doesn't matter what kind of bike they have, repairs taught will cover all makes and types)

SESSION 1:
introduction to the bike, tools, periodicals, etc.
learn how to fix a flat tire

SESSION 2:
brakes: identify and locate parts
replace cable - disassemble, replace and assemble
replace shoes
adjust brakes
troubleshooting

SESSION 3:
gears: identify and troubleshooting
replacing cables
adjusting derailleurs
(if time - will do chain removal, cleaning and replacing)

SESSION 4:
greasing rear hub
other troubleshooting
tips on making a trip to a shop more knowledgeable and less expensive

Repairs will be aimed at doing them in the field or at home. It is designed for those who know very little about bike repair and are interested in learning some basic skills.

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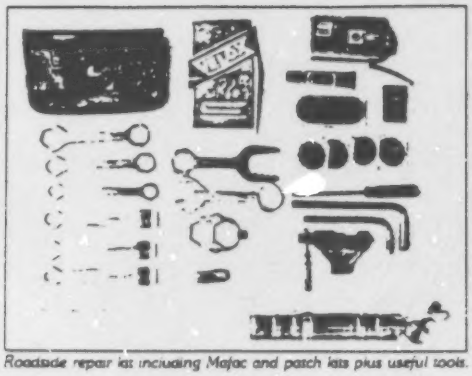
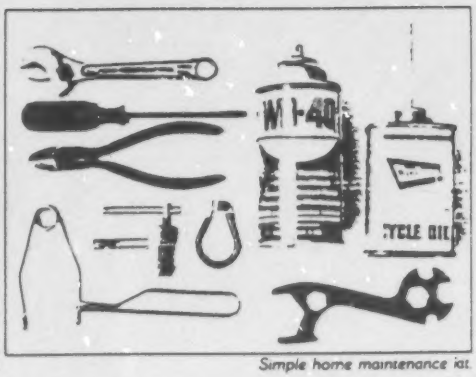


Roadside repair kit including Mafac and patch kits plus useful tools.



Simple home maintenance kit.

Basic Bicycle Tools

Tools and Techniques for Better Cycling

Frank Berto

When buying your first bicycle tools, think of three repair situations: emergency roadside repairs, routine home adjustments and maintenance, and annual overhauls.

Roadside Repair Kit

The most frequent roadside failure is a flat tire. Cycling is more pleasant if a flat tire means a 10-minute delay rather than a crisis. In order of frequency, other roadside problems are: broken spokes, derailleurs going out of adjustment, cable failures, loose bolts, and chain failures. Unlike flat tires, these failures usually won't immobilize you.

A good emergency repair kit for short trips and commuting consists of a Mafac repair kit plus allen wrenches for your bike's allen bolts, a small chain rivet extractor and a ¼-inch blade screwdriver. The extra tools will fit into the Mafac pouch. The total cost should be under $10.

You will also need a tire pump and a small patch kit. The patches with the Mafac kit don't include glue, and they don't stick very well. Rema makes a fine small patch kit. Or, you can carry an extra tube.

If your bike doesn't have quick-release wheels, a 6-inch crescent wrench will loosen your wheel nuts with less strain than the Mafac wrench.

The suggested roadside tools don't include a spoke wrench because it isn't very useful. The severely stressed rear spokes on the freewheel side are the ones that usually break. You can't replace a freewheel-side spoke without removing the freewheel, and that's definitely not a roadside job. So, when a spoke breaks, loosen your brake adjustment until the rim doesn't rub and finish out your ride.

The chain breaker is marginal. In five years I've had only one chain failure on the road, but for that one time I was glad to have the tool.

Simple Home Maintenance Kit

Your basic home tool kit contains heavy-duty versions of the roadside tools plus a few extras. A good starting kit consists of:

- 6-inch adjustable wrench (Crescent makes a fine one; $5)
- 3/16-inch blade screwdriver ($1.50)
- Pair of side-cutting pliers ($6)
- Chain rivet extractor ($3; If you have a Shimano Uniglide chain, buy their chain breaker)
- Spoke wrench ($3; Park Tool makes a reliable one; be sure to get the size to fit your spokes)
- Brake arm squeezer or third hand ($2)
- Universal bicycle wrench ($1)
- Spray can of WD-40 or something similar ($1)
- Oil can ($1)
- Repair manual (*Richard's Bicycle Book* is helpful and inexpensive; $3)

With these tools, you can keep your bike clean, lubricated and adjusted, and you can replace tubes, tires, brake pads, cables and chains as necessary.

The most controversial tool is the spoke wrench. Without a fair knowledge of what you are doing and a wheel truing stand, you'll often do more harm than good.

Advanced Home Maintenance Kit

Most beginners won't need the tools in the following list. However, if you want to do all of your own work, you'll require these tools. Compared to the hourly rates that a good bike shop must charge, the cost of tools is quickly amortized.

For a proper cycle overhaul, you have to have the tools to get into the 14 sets of ball bearings. These tools are like can openers; you need them to get into where the action is.

Bottom bracket tools are needed to change chainwheels and to clean, check, grease and adjust the bottom bracket bearings:

- Fixed and moveable cup wrenches (Campagnolo makes a good set of three tools for $30 that also remove pedals and headsets; Sugino offers two tools for $10; make sure that you get wrenches that fit your bottom bracket)
- Crankset remover (get one that fits your crank; $5)
- Chainring bolt wrench (50¢)

Hub and freewheel tools allow you gear-freaks to change sprockets on your freewheel. You can also clean, regrease and adjust your hubs and clean and repack your freewheel.

- Cone wrenches (Bicycle Research or Sugino make quite adequate narrow wrenches; the front and rear hubs are usually different sizes; $3/pair)
- Freewheel remover (get one that fits your freewheel; $3; you will also need a vise or a big, 12-inch, adjustable wrench)

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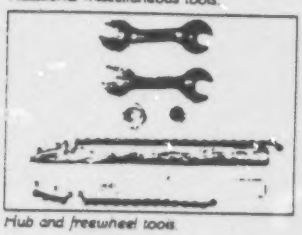
Additional miscellaneous tools.



Hub and freewheel tools.

- Chain-type sprocket removers (you need two of these or one and a special freewheel vise: $5 each)

Miscellaneous Tools

- Arc joint pliers ($7)
- Metric open-end wrenches ($5: a set of five covering 8 mm to 17 mm handles most bikes; for some strange reason the 16 mm size is left out of most sets, but it's a common bicycle size)
- Metric allen wrenches ($4)
- Pedal dust cap wrench ($2)
- Cable cutter ($9; Sun Tour makes a fine one)
- ¼-inch blade screwdriver ($2)
- Campagnolo T-wrench ($6; high-priced but it fits so many parts)

If you get seriously into home bicycle repair, you'll need a comprehensive repair manual. I recommend the following four:

Glenn's Complete Bicycle Manual ($6)
XYZYX Derailleur Bicycle Repair ($4)
Sutherland's Handbook for Bicycle Mechanics, 2nd Edition ($11)
DeLong's Guide to Bicycles and Bicycling ($13; now available in paperback for less)

Why Flat Tires?

With eight bicycles in the family fleet, I repair a flat tire every other week. I've concluded that flat tires are the result of a variety of causes.

Sloppy riding technique: Learn to steer around glass, pebbles and potholes. Learn to jump your wheels when you can't avoid a bump.

Tender tires: Tubular tires or the new high pressure, 27 x 1 ⅛-inch, lightweight, clincher tires get more flats. By contrast, the 28 x 1½-inch tires on the Raleigh Tourist I tested are virtually puncture-proof. Unfortunately, easy-rolling tires are more puncture-prone. Wearing out the last 10 percent of the tires' tread will lead to extra punctures.

Weak rims: If you find two rips in your tube, ⅜-inch apart and no sign of anything penetrating your tire, you probably suffered an impact puncture. You ran over a pothole or a stone, and the rim sprung apart, letting the tube bulge out under the tire bead. Low-priced aluminum rims are more prone to this kind of failure.

Excess load: You get many more flats on heavily-loaded, rear tires. Heavy riders get more flats than lightweights.

Improper inflation: Running your tires under-inflated leads to more impact punctures. Hammering 110 psi into 90 psi tires also increases the chance of punctures.

You have to strike a balance between punctures on the one hand and responsive, easy-rolling tires on the other hand. The 27 x 1¼-inch Schwinn Le Tour is both rugged and easy-rolling. It also is quite expensive.

Why Broken Spokes?

This is a similar kind of compromise situation, except that there are fewer good reasons for using lightweight spokes. Spokes also fail due to a variety of reasons.

Over-stressed spokes: The wheel isn't properly built, so certain spokes are over-stressed. This is where the beginner gets into trouble with a spoke wrench.

Light spokes: The spokes are too light for the service. If you weigh 200 pounds or you carry touring loads, don't try to use 15- or 16-gauge, double-butted spokes. If you find your freewheel-side spokes breaking regularly, settle for plain 14-gauge spokes and accept the tiny weight penalty.

Defective spokes: This seems to be a problem with the cheapest spokes and with expensive, stainless steel spokes. I've stopped using such spokes.

Wheel construction: The wheel construction is wrong for the service. This is less important than the above reasons. 4-cross, low-flange wheels are less prone to spoke failures than the more normal 3-cross high-flange construction.

Note: Prices cited may vary with geographical location and supplier.

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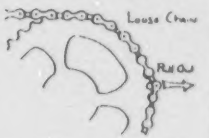
A Timetable for the Care and Feeding of Your Bicycle

This timetable assumes an average riding frequency of at least four rides a week and a minimum distance of 40 miles a month. However, bicyclists who only ride once a month (poor things) should pay much closer attention to "Every Ride" care. Notes in italics apply to all components. If you ride on dusty roads, in wet weather, or ride a lot, the "Once a Year" chores should be done every six months.

	EVERY RIDE	EVERY MONTH	EVERY 3 MONTHS	EVERY 6 MONTHS	ONCE A YEAR
HEADSET	*Be careful in cleaning not to shove dirt further into moving parts*	Check for looseness, if you haven't noticed it already riding. (Pick up bike by handlebars and shake.)	Check for grittiness in turning the bars (sort of a sandy feel)		Disassemble, replace worn bearings, lubricate and rebuild *
DERAILLEUR	Clean with soft cloth and toothbrush	Oil Simplex and Huret shift levers. (Oil Campy or shifter with ratchets every 3 months)	Oil all rubbing parts. Oil other derailleur types (see "Every Month"). Grease or oil cables		Replace cables
BRAKES	Be sure both wheels skid when bike is pushed with brakes applied. Check cables for fraying. Do pads hit rim properly?	CENTERPULL: Oil stirrup cable pivot (Mafac, Weinmann) and stirrup hanger. SIDEPULL: Oil between brake arms and washers on either end, i.e., all parts of center bolt that rub one another	Check for wear on brake pads. Grease or oil cables	*NEVER OIL ANY PART OF A BICYCLE UNLESS IT IS SPOTLESSLY CLEAN*	Replace cables
WHEELS, HUBS & TIRES	Is hub tight? Are wheels true? Are they centered on the frame? Clean with soft cloth and toothbrush. Are valves straight? A slanted valve could mean a slow leak. Check for cuts, wear or bulges	Check rack and fender mounting bolts	Check for grittiness. Freewheel wobble is a natural phenomenon due to the way it is set on the hub. Don't worry about that - just keep it clean	If you've had no flats in 6 months, reglue your sew-up tires	Disassemble, replace worn bearings, lubricate and rebuild * Check your spokes. Have any corroded?
CRANK & CHAIN	Clean with soft cloth and toothbrush	*Apply the smallest amount of oil possible*	Oil all rubbing parts. A tick or jerkiness in the turning of a cottered crank probably means a loose cotter pin	Is your chain stretched? (Does it pull away from the teeth more than half the length of a tooth in high gear?) Oil chain if it squeaks or has any rust	Disassemble, replace worn bearings, lubricate and rebuild *
PEDALS	Clean with soft cloth and toothbrush	*There are over 240 ball bearings in a bicycle. Each one should be cleaned and lubricated at least once a year*	*There are over 80 nuts and bolts on a bicycle. Each should be checked for tightness and lubricated if it is a pivot point. Threads should be kept spotlessly clean*		Disassemble, replace worn bearings, lubricate and rebuild * (Note, some pedals come with bearings and some with plastic rings. Those without removable dust caps cannot be replaced. Just run with them until they wear out.)
MISCELLANEOUS	*Use a silicone or petroleum oil. NEVER "3-in-1" or any other vegetable-based oil. It gums the works*	Gently scrape off accumulated grease on chainwheel teeth with screwdriver	Treat your leather saddle	Check for rust between stem and fork steerer and grease if necessary. (Electrolyte action may weld these together. Sweat makes them worse. Those who use rollers and sweat, take note.)	**Do these at the bike shop, unless you have invested in the special tools required*

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Maintenance and Repair

Listening to Your Bicycle

The Sounds You Hear Coming From the Moving Parts of Your Bike Could be Early Signs of Trouble

Roger Bergman

The visual spectacle of the operating bicycle is very satisfying but also very distracting when trying to track down mechanical problems. Bicycle parts, moreover, move very quickly, and you can't watch them while you ride. But you can listen and besides those you actually hear you can also feel vibrations.

As a general rule, for all sounds, normal and abnormal, the cadence of the sound is as important as the quality of the sound. Try to match the tempo and rhythm of the sound to the tempo and rhythm of some rotating part of the bicycle by moving different parts separately.

Cadence Versus Quality

It is perfectly normal to hear a soft, rapid, clicking noise from a rear derailleur hub while coasting. This is the ratchet mechanism within the gear cluster that enables you to coast or freewheel. Pedal forward and the sound should stop while you engage the ratchets (called pawls).

If the chain runs forward by itself while you coast with the pedals stationary, then you have a friction freewheel at the rear hub, and the front freewheel mechanism will click from the bottom bracket.

While coasting, three-speed bikes will click from the rear hub in all three gears, and while pedaling, a slow clicking in first and second gears is normal, too.

You may, on the other hand, hear abnormal sounds. If you hear a clickety-clack similar to the freewheel ratchet but louder and with a distinct rhythm, there is probably something wrong. Does the noise quicken as the wheels spin faster and slacken as the wheels decelerate? Do you hear it both while pedaling and coasting? Spin the wheels separately to determine if the sound is from the front wheel or the rear wheel. Look for something striking some or all of the spokes as the wheel spins. Check the end of your kickstand, a stray gear or brake cable, or even the edge of a three-speed chainguard. A reflector bracket, baby seat or basket part can also make this clickety-clack, which will persist while pedaling and while coasting as long as the wheel is moving spokes past the noisy item.

Try to match the tempo and rhythm of the sound to the tempo and rhythm of some rotating part of the bicycle by moving different parts separately.

A slower acking accompanied by a muffled vibration, both pedaling and coasting, is rubber striking metal somewhere as the wheel spins. You can usually *feel* this problem while pushing the bike slowly a few yards. Look for a wheel out of true where a rim catches a brake pad one or more times in every revolution. The tire can also touch a fender or the frame and make a similar sound. Don't overlook inaccessible places such as the reflector bolt sticking through the rear fender on a three-speed.

The Crank that Clanks

Other noises do not persist while both pedaling and coasting. If the sounds stop while coasting, we can eliminate wheel problems since the wheels are still turning. Remember that we are matching the rhythm of the sound to the rhythm of some moving part of the bike.

A clank that you hear exactly in phase with rotating the cranks obviously implies that something is hitting the crank. These clanks can be caused by the kickstand, chainguard and also by bent chainrings. You can usually hear these problems while rotating the cranks in either direction, and occasionally you will discover a loose bottom bracket at the same time. When the clank takes on a scraping quality, check the front derailleur cage (chainguide).

Clanks that do not match the rotation of the cranks and that stop when you coast are almost always caused by the chain. In addition, the chain may chink as well as clank. Check the entire chain including the chainguard, if you have one. Remember that the chain usually has enough slack so that gravity will deflect it downward when not under tension. I can usually crouch behind the bike and sight along the chain to examine it. Also, investigate the bottom of the large chainring if you are cross-chaining.

A crunching clank heard only while you pedal may be the chain trying to decide between two ambiguous gears. Adjust the gear levers including wing nuts if you have them. Other derailleur adjustments may also be necessary.

Straight crunching at any time, or as some people describe it, cracking, is very bad news. Crunching will be accompanied by looseness or by variations in the resistance of the bad part, or both. If heard only while pedaling, examine the bottom bracket, rear hub and pedals. Otherwise, check the headset and both hubs.

You will find ball bearings ground into hemispheres and cubes, gears without teeth, dented cups, and other masticated parts. Unfortunately, parts that have deteriorated to this point will require replacement. Resolve to lubricate and adjust more often.

Squeaks are the hardest category of noise to track down. Those that you hear all the time, regardless of the motion of the cranks or chain, are usually in the hubs and require lubrication. Once in a while they are benign, such

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as saddle springs or spokes rubbing together in a tight wheel. Check the headset by turning the handlebars while you lean on them.

An Appreciable Squeak

Squeaks that stop when you coast are one of the following and can be cured with lubrication: bottom bracket, pedals or rear derailleur pulleys. It is probably easiest to oil the derailleur first before you start taking things apart. But since these squeaks may appear only under pressure, you may wind up greasing all three before you finally find the culprit.

A groan each time you push down hard on the pedals may be from another cyclist trying to keep up with you, but it is probably a pedal asking for lubrication or your cotterless crank coming loose.

People sometimes complain of squealing brakes. Explore the adjustment of the pivot bolts or through-bolts, but do not ever lubricate the rims. Ordinarily, the vibration of the brake pad against the rim when the brakes are applied may be embarrassing, but will not affect the efficiency of the brakes. If the brakes work, I suggest not tampering with them, although there are two cures for the squealing.

One cure is to bend the calipers slightly so that the front part of the brake pad meets the rim before the rear. Since the calipers are designed to be stiff and to resist bending, you risk snapping the calipers. A safer solution may be to remove the pads and shave off a few millimeters at the rear of the brake pad, again so the front of the pad meets the rim first.

Some noises emanate only when going over a bump and do not correspond to pedaling, coasting or anything else. These noises are mostly rattles. Check such features as fenders, chainguard, lights, reflectors, and accessories. Three-speed bikes often have a noisy ornament on the front fender. I usually tap each part of the bike with the fleshy part of a finger until I track down the rattle.

Many rattles are benign, but others can be extremely dangerous: a loose bolt that lets a fender rattle may be the same bolt that secures your brake calipers; a loose kickstand may fall into the spokes; a loose basket may jam your wheel and throw you headlong into traffic.

By and large, noises from your bicycle are warning signals to take action for safety or maintenance. Take them seriously. □

DESIGNING AND BUILDING YOUR OWN FRAMESET

An Illustrated Guide For The Amateur Bicycle Builder

By: Richard L. Talbot, Jr.

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Maintenance and Repair

Basic Bicycle Lubrication

Attention to the Moving Parts of Your Bike Can Insure Smooth and Troublefree Riding

Thom Lieb

Your bicycle components will work more smoothly and last longer if you keep them properly lubricated.

If you ride your bike more than once a week, you should give your bike a general lube once a month; less frequent riders can use a less frequent lubrication schedule.

The best products I have found for lubricating cables are WD-40, LPS-1 and Dri-Slide. These are spray products that come with small extension nozzles for reaching hard-to-get-to spots. All of these products displace water (preventing rust) and do not attract dirt and grit, as do oil and grease.

Spray all the exposed cables and the cables inside the housings, either by using a nozzle or disconnecting and reconnecting the gear and brake cables so you can free the cables. Also spray the cable anchor points on the brake caliper arms (sidepull brakes) or on the cable anchors (centerpull brakes).

Next, spray the pivots inside the brake levers, and the shift lever and derailleur pivot points.

Spray the derailleur pivot points with a lubricating product to prevent rust.

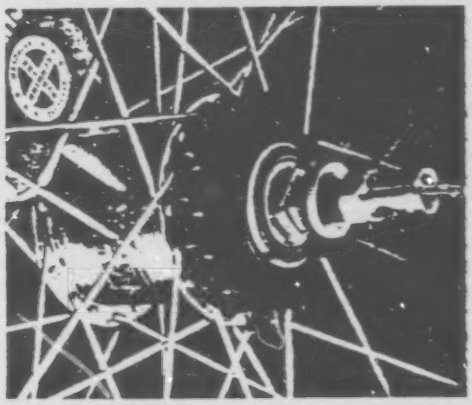
If you use toe clips and straps, give the strap rollers a shot of lubricant, too.

Some components require more substantial lubricants. You should give each pivot pin in your chain a shot of heavier LPS-3, or a drop of oil, after every week or two of riding. Every month or two, remove the chain and soak it in a can of kerosene. Shake the can to free grit. Take the chain from the can and shake it briskly away from you outdoors. Then soak and shake the chain in clean kerosene, pull out and shake again. Let the chain air dry, hanging up away from dirt, or dry it with a low-torch flame. Then either soak the chain in a can of warm oil or lay it out with an open end up on sheets of newspaper and spray a squirt of LPS-3 or drop a drop of oil into each pivot pin. In either case, wipe the sides of the chain with a clean rag to remove excess lubricant — you need lubricate only the pivots. Lubricants on the outside of the chain only attract dirt and grit; on the inside of the link plates, a lubricant can reduce friction and wear but also attracts grit, which will probably cause worse wear.

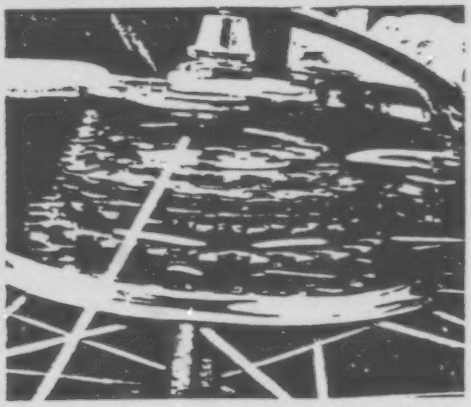
Use the Right Oil

If you want to use oil, make sure you buy oil designed for bikes such as Schwinn's oil. Other oils, like 3-in-1, are vegetable-based and will gum up everything. A can of oil with a small spout is easy to use, but a hypodermic dispenser is even handier.

If you ride in the rain, you will have to use a special post-ride procedure if you want to keep your chain working well. After you come in from a wet ride, apply a penetrating oil, such as Liquid Wrench, to the chain while you turn the cranks and shift gears. This will let the penetrating oil creep in between the pins, rollers and side plates, forcing out moisture. Wipe off any excess oil and



Add a tablespoon of oil to the rear hub of a three-speed bike each month.



Drop a bit of oil between the small cog and the inner body of the freewheel to lubricate the bearings.

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grime, then apply light oil in the same manner. When the oil is well worked in, allow the bike to set for a few hours, then wipe off the surplus.

After every week or two of riding, you should also lubricate the chain rollers in your rear derailleur. Most chain rollers revolve on metal sleeves and need only an occasional squirt of LPS-3. Some, however, use a ball and cone setup and must be cleaned and regreased occasionally.

Oiling the Hub

If you have a three-speed bike, you will also have to occasionally oil the rear hub. Locate the oil cap on the hub and flip it open. Add about a tablespoon of oil each month you ride.

Many of the better hubs on five- and ten-speed hubs also have oil caps, but these hubs always come from the factory with grease instead of oil. To clean or lubricate these hubs, as well as the bearings in your pedals, bottom bracket and headset, you will have to disassemble the units. All four components work on the same principle: an axle rests between two sets of bearings which are held in place by cones and lockwashers. These cones and bearings must be adjusted so there is no side-to-side play but so the axle spins freely. Adjusting these units requires special tools and a feel that comes only with experience. Unless you know a patient expert who is willing to guide you through the procedure of your first few tries, you should leave this to your bike shop. These components should be overhauled every six to twelve months, depending on how often you ride.

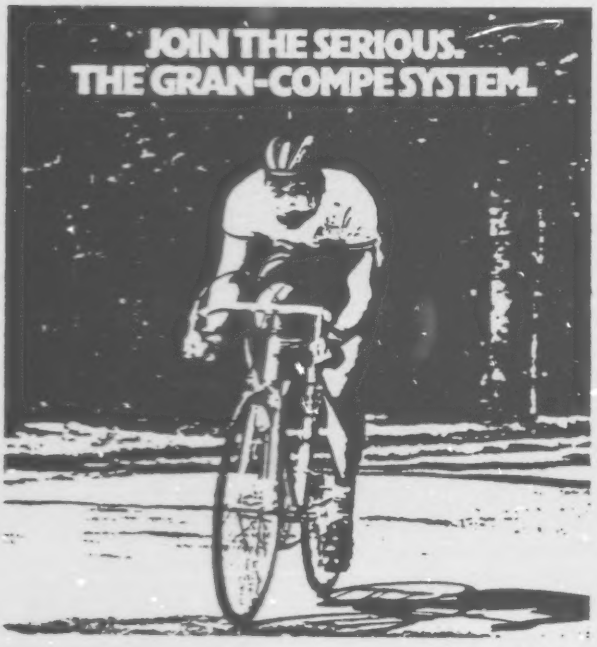
The freewheel on five-, ten-, twelve- and fifteen-speed bikes is the only other component that will need periodic lubrication. You need not lubricate the teeth, but the bearings inside the unit will need an occasional drop or two of oil. This can be added through the gap between the small cog and the freewheel inner body.

Every six months, you should also give your freewheel a thorough cleaning. You will have to remove it from your bike to do so. To remove the freewheel, you will need a special tool made to fit your freewheel. The tool will cost between $2 and $5. It goes into the slots in the freewheel body after you remove the axle nuts and washers from the rear wheel (if you have quick-release hubs, remove the conical nut and springs). You then screw the nut (or conical nut) on finger-tight to hold the tool in position. On some freewheels, you will first have to remove the inner nut and spacer on the right rear axle.

Use a large wrench to break the freewheel loose counterclockwise. This will take effort. You may have to stand the wheel up and kick the wrench with your heel for leverage. After it breaks free, spin the freewheel off with the tool.

If you want to be adventuresome, you can disassemble the freewheel and clean it. Reassembly can be frustrating, however, so you may opt for a simpler procedure. Here, you clean the cogs of the freewheel with a paintbrush dipped in solvent. Dry them, then flush out the inside by spraying WD-40 into the gap between the small cog and the inner body. Set the freewheel flat on newspaper to let it drain. After a few hours, drop several drops of oil into the body and let drain again. Then remount the freewheel.

Before remounting the freewheel, squeeze a few drops of oil into the threads of the rear hub. This will prevent the freewheel from sticking. It is also a good idea to lightly grease your seatpost when you insert it or change its position in the frame. □



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Maintenance and Repair

Brake Adjustment

A Step-by-Step Guide to Troubleshooting and Repairing Your Brakes

John Schubert

It's hard to name a bicycle component more important than brakes. Yet, as any bicycle repairman can attest, most cyclists keep their brakes in minimal repair. How about you? Are your brakes well-adjusted enough to get you out of any jam you might pedal into? If not, an hour of your time and possibly a few dollars can put your brakes in top condition. You probably won't have to redo the job for at least a year.

Possible Problems

Several problems befall brakes. You may find yourself fixing any or all of the following:

Excess friction in the moving parts (hand lever, cable and casing, brake arm pivot points) robs energy from the assigned task of slowing the bicycle down. The friction also fools you into thinking you really are braking hard (because you're squeezing so hard) at a time when you aren't.

Misaligned brake shoes work poorly because the rubber pads don't strike the rim squarely. This can lead to flat tires from sidewall abrasion, rapid and uneven wear of your brake pads and inferior braking performance. Or your brake pads may be so badly worn, especially if they're worn unevenly, that they need replacement.

If the brake mechanism isn't centered over the wheel, one brake shoe may drag on the rim constantly. While it's possible for this to be a mere annoyance in otherwise well-adjusted brakes, it feels awful. And it introduces a constant drag that obscures the nice road feel you should get in your fingertips when you apply your brakes.

Your brakes may be too loose, so that you have to squeeze the hand lever almost to the end of its range of motion just to get the brake pads to touch the rim. Too-loose brakes don't give you enough stopping power. Most well-designed brake sets (including some of the very cheapest ones sold) can be adjusted to offer so much stopping power that you'll be squeezing as hard as you can (and locking your wheels) before you run out of lever travel. Your bike should be in such condition.

Brakes may be too tight, so they rub the rim constantly. Or perhaps a warped or dented rim strikes the brake pads as it revolves between them.

When cutting cable casings, use a swift, firm grip and a sharp pair of wire cutters. This will insure a clean cut.

Brakes may be mounted loosely on the bicycle frame. This introduces wobble and clatter into the brake system, and also increases the chances of a serious accident from the brake coming off the frame and tangling in the spokes.

Begin your overhaul by making sure your brakes can't come off the frame. Is the nut which holds them onto the frame loose? Or, once you've loosened it, does it spin freely? If it does, it might vibrate right off someday and cause you to crash.

Some brakes have a small rubber ring embedded in the mounting nut. The rubber ring keeps the nut from spinning freely and ensures that the nut won't vibrate off.

If your brakes don't have this rubber insert, invest a dollar in a tiny bottle of any brand of anaerobic adhesive. (Anaerobic adhesive gums up the threads so the nut comes loose only when you want it to.) You may want to put it on other bicycle parts as well, but don't get it near any moving parts and don't use very much. A little goes a long way.

Now look over your rims. They're part of your braking system, and you can't do an overhaul without checking them, too. Lift the bicycle so one wheel is a few inches off the floor and give the wheel a spin. Does it wobble from side to side because of a potato-chip-shaped warp? Use a spoke wrench to fix the warp. Or, if you prefer, have a shop true your wheels for you. But don't neglect this part of the adjustment.

A few drops of oil may be all that's necessary to relieve the friction in your hand levers.

Reducing Friction

The biggest portion of the job will probably be reducing excess friction from the moving parts. Start by loosening the cable inner wire from the brake's binder bolt so you can free the cable from the hand lever.

Does the hand lever swing freely when the cable isn't attached? If it doesn't, squirt some oil at the hand lever pivot points. Swing the lever several times. If the lever still doesn't swing freely, gently bend it to one side and, while continuing to bend, swing it up

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and down a few times. Then bend it to the other side and repeat.

While you're working on your hand levers, make sure they're securely attached to the handlebars. If they need tightening, give a firm twist to the mounting screw (usually found in the throat of the lever housing).

Your next target is cable friction, an especially common cause of brake malfunctions. There are two problems here: overall cable casing length and poor lubrication.

Right Cable Length

Cable-casing length is an often ignored but significant source of brake system friction. Your cable casings

This bicycle came from the factory with cable casings about five inches too long. Here you see what the casing should look like when the extra length is eliminated. By shortening the casing, you'll reduce cable friction.

should be no longer than necessary to reach from the brake lever to their endpoint (either the front brake or the frame's top tube) in a smooth but tight arc. Any extra casing length adds a lot of friction. (If you glance at any photograph of bicycle racers, you'll see they're all outfitted with very short brake cable casings).

Odds are your bicycle came from the factory with cable casings a few inches too long. To see how much casing length you can do without, remove the inner wire and hold the casing in its normal position on the bicycle. Move the casing to describe a tight arc between its two endpoints and cut off the excess with sharp wire cutters (small wire cutters will do the job if they're sharp).

Don't forget the little bit of cable which reaches up off the top tube and down to the rear brake. Bicycles are often sold with this little loop describing

A lightweight grease will make your brake cables function much better. Avoid heavyweight axle grease; the difference between heavyweight and lightweight grease is dramatic.

a double-S curve. By shortening this little bit of cable, you can eliminate a lot of friction.

Now grease your inner wire. Work as much grease as you possibly can into the space between the inner wire and the casing. It's important that the cable innards stay well-greased, otherwise moisture will cause those innards to rust and stick to one another.

Finally, see if your brake arms can pivot freely. If they can't, try slightly loosening their mounting bolt(s). Those bolts should be just loose enough for the brake to function freely — and not loose enough to allow the brake arms to slope sideways. This concludes your friction hunt.

Inspect your brake shoes and rubber pads. If they're worn unevenly, replace them. If they're mounted so they don't contact the rim squarely, loosen the mounting nut and reposition them. Make sure you tighten the mounting nut securely, but don't over do it: you can easily snap the nut off. This mounting nut is another good place for a drop of anaerobic adhesive. And if your brakes have been squealing, gently bend them so the front of the brake pads contacts the rim slightly before the rear.

Next month, we'll show you how to tighten your brake cable without needing three hands, and how to center any brake — even a stubborn sidepull — over the wheel. □

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Maintenance and Repair

Brake Adjustment Part II

Quick and Easy Ways to Center Your Brakes and Tighten Your Cables

John Schubert

In last month's maintenance article we suggested ways of troubleshooting your brake system. But we left undone what many people find the hardest and most confusing tasks in a brake overhaul — tightening and properly setting up the cable with only two hands, and centering the brake over the wheel.

If you know how to do these tasks, they're easy. A few tricks will make them much easier.

Because it's not obvious how one centers a sidepull brake over the wheel, many a bicycle repair book has given insufficient attention to this task. And the unpopularity of sidepull brakes earlier in this decade was largely due to the perceived difficulty of centering them.

Centering Brakes — The Easy Way

So, many people have resigned themselves to having one brake shoe drag on the rim. They shouldn't. Sidepull brakes can be centered in less than a minute once you learn the trick.

For most brands of sidepull brakes, you'll need a special centering tool: an extra-thin, 10-mm wrench. If you're lucky, you may find one at your local bike shop, but you may find it easier to devise your own by buying a hardware store, 10-mm wrench and taking it to your grinding wheel (you'll also need a regular 10-mm wrench).

Put the regular 10-mm wrench on the cap nut (also called the acorn adjusting nut) that holds the whole brake assembly onto the pivot bolt. Now put your extra-thin, 10-mm wrench on the locknut which sits right behind the cap nut. Tighten the two nuts against one another. Now leave one of the two wrenches on its nut and move the other wrench to the brake mounting nut (also known as tightening the acorn nut) which holds the whole brake on the frame.

Now, by turning both wrenches *in unison*, you can rotate the brake pivot bolt — and along with it the spring which centers the calipers and brake shoes. With the slightest twist of your wrist, the brake will be perfectly centered over the wheel.

If your bicycle has those new sidepull brakes without a cap nut, the job is even easier. You won't have to hunt for any extra-thin wrenches. The head of the pivot bolt is broached for a 6-mm allen wrench. Insert the allen wrench there, put a 10-mm wrench on the mounting nut in the rear, and rotate it.

If your bicycle has centerpull brakes, the job is no more difficult. You may be able to center the brake with your bare hands; see if you can rotate the bridge (the piece of metal in which the caliper pivots and springs are located) by hand. (If you can, that's not necessarily a sign that the brake is dangerously loose, but make sure the mounting nut can't vibrate off.) If you can't budge the bridge by hand, latch onto it with a large metal-eating tool, preferably a set of arc-joint pliers. Slightly loosen the 10-mm mounting nut, use the tool to rotate the bridge, and hold the bridge in position as you retighten the nut.

To center a sidepull brake over the wheel, first tighten the cap nut and locknut against one another (top), and then move one wrench to the rear mounting nut. By moving both wrenches in unison, you can rotate the entire brake on its mounting bolt.

Tightening the Brake Cable

Tightening your cable is another job that drives many home mechanics to distraction. You have to squeeze the brake shoes shut, pull the cable inner wire tight and tighten the binder bolt all at once. No wonder various companies manufacture a tool called a third hand, and another tool called a fourth hand.

But you and I can do a fine job with

Two hands do the work of three or four when you attach your brake cable with this method. Grab the cable with needle-nose pliers and wind it tight; use a wrench in your other hand to snug the cable anchor nut.

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just two hands and a little ingenuity. The procedure is the same for both centerpull and sidepull brakes.

To restore your brakes to working order after removing the cable and working on them, first rethread the cable through the loosened binder bolt. Now take a pair of needle-nose pliers and grip the cable just underneath the binder bolt. Rotate the pliers while keeping a tight grip on the cable. You'll wind the cable around your pliers as you would wind spaghetti around a fork. This automatically draws the brake shoes shut.

Wind cable until the brakes are as tight as you want them (you want them on the tight side to allow for cable stretch). Now, while keeping the cable wound up, use your other hand (and, for most brands, a 9-mm wrench) to tighten the anchor bolt. When the bolt is snug enough to keep the cable from slipping, set your needle-noses down and carefully tighten the cable anchor bolt the rest of the way.

For sidepull brakes, a good rule of thumb is to tighten the anchor bolt as much as you can with one finger. It's easy to strip the threads and snap the bolt off if you use your whole hand.

For sidepull brakes, the two-handed cable attaching method looks like this. Note that one finger supplies all the strength you need to adequately tighten the anchor bolt.

And look at where the cable passes through the hole in the anchor bolt. When it looks substantially crimped, you've tightened it enough to keep it from slipping.

For centerpull brakes, you'll need to finish tightening the anchor bolt with two wrenches, since the anchor bolt is part of that little, free-floating cable yoke. Hold the anchor bolt's rear end steady with one wrench and tighten the nut onto the cable with the other wrench. Your anchor bolt is just as delicate as the one on a sidepull brake, so don't use all your might.

If you have trouble tightening your cable this way, a third-hand tool (available at most bike shops) will hold the brake shoes shut for you. And a household C-clamp makes a very serviceable third-hand tool. Hardly anyone uses the fourth-hand tool.

Now that you've finished your overhaul, be prudent and keep your brakes in good condition. They'll return the favor. □

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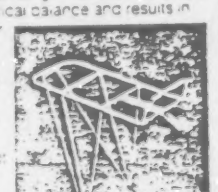

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Bicycle Workshop

How To Troubleshoot Your Gears

Four Simple Ways to Make Gear-Shifting Smooth and Noiseless

Pity the poor derailleur. Whenever a bicycle doesn't shift well, people often assume it's the derailleur's fault.

The blame is often misplaced. True, the derailleur is the kingpin of the bicycle's intricate shifting mechanisms. But it works in close contact with many other components: the chain, chainwheels, freewheel cogs. Any of these, especially when coated with dirt, can cause poor shifting, scraping, grinding and other drivetrain problems. In this two-part article, we'll examine the drivetrain and fix these problems one by one.

It's no fun cleaning greasy dirt out of your drivetrain, but it's the best way to start an attack on drivetrain problems. Dirt sneaks into bearing surfaces and other nooks and crannies, so parts which should move freely get gummed up. Cleaning out this dirt will magically cure some problems, and it will make the solutions to others more obvious.

First, the Chain

We'll begin with the chain, partly because it's simple and partly because a freshly cleaned and oiled chain works noticeably better.

Chains won't last forever, and you should expect to replace yours every couple years, especially if you ride a lot or let the chain get rusty. When the chain wears out, the link pins chew at (and enlarge) the holes in the chain's inner sideplates, and the chain will have too much flex in all directions. Not only does this make for more reluctant shifting (because the chain has a tendency to flex sideways as it spans the gap between the derailleur and the cog), but also each chain link becomes slightly longer. As a result, the chain no longer meshes with the cogs and chainwheel teeth and grinds on them. It also tends to skip up over the teeth of the smallest rear cog when you pedal hard.

To check for chain wear, reach for a section of chain wrapped around a front chainwheel. Using thumb and forefinger, try to pick a single chain link up off the chainwheel teeth. It shouldn't move more than ⅛-inch. If it can be moved more than that, there is too much flex in the link pins, and it's a sign that the chain should be replaced.

A more elaborate and accurate way of measuring chain wear is to take the chain off the bike as described below and stretch it out on a flat surface. Measure the length of a 24-link section. A new chain will measure 12 inches. When a chain measures more than 12⅛ inches, the chain is worn out.

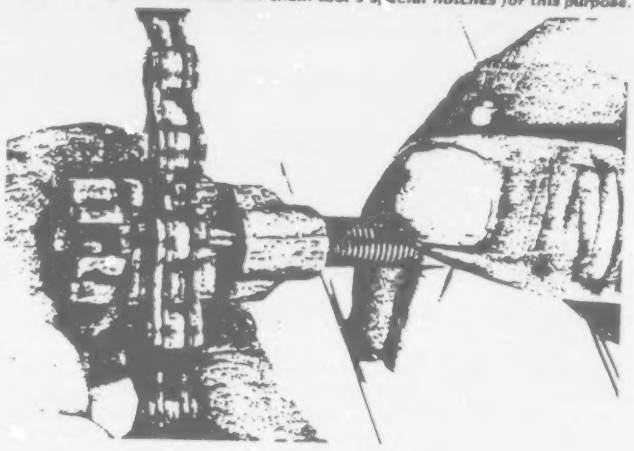
If your chain looks dirty, it is — and it should be taken off the bike and cleaned. A ten-speed chain has no master link, so you remove the chain from the bike by cutting it with a chain-link tool. Set the chain in the tool and screw in the chain-tool punch. The punch will push a chain-link pin out of the link. When the pin is almost clear of the chain's inner plates, unscrew the chain-tool punch. You should be able to pull the link apart now. To replace the chain later on, you'll use the same chain-tool punch to push the link pin back where it belongs; then you'll put the link in the chain tool's other notch and screw in the punch to flex the link sideways, restoring the link's flexibility.

Soak the chain in a can of kerosene and clean off any dirt with an old paintbrush or rag. Let the chain dry. When you put it back on the bike, give each link a drop of light oil. Allow the oil to penetrate the links and wipe off the outside surfaces of a chain only attracts more dirt.

Next Target: Freewheel

Now remove the rear wheel from the bicycle so you can have a closer look at your next target — the freewheel. Is it dirty? Clean away the caked dirt with a screwdriver and finish the job with a rag soaked in kerosene. If the freewheel is exceptionally dirty, remove it from the hub with a freewheel remover (see *Bicycling*, April 1979, p. 20) and soak it in kerosene. Then let it dry thoroughly, so the kerosene has a chance to drain out of the bearings. Whether you soak the freewheel or not, squirt light oil

When you reassemble a chain, you should restore sideways flexibility to the link you've operated on. Use the chain tool's special notches for this purpose.



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You can see plenty of daylight underneath when you pull a badly worn chain away from the chainwheel teeth. A chain in good condition fits the chainwheel more snugly than this.

into the gap between the small cog and the freewheel body to lubricate the bearings. Spin the freewheel so the oil is well distributed among those bearings, and use a rag to clean up the excess that leaks back out. (Note: Freewheels last longer than chains, but they do wear out. If your freewheel teeth have rounded corners from the chain grating on them, this may be a cause of drivetrain problems, especially the chain slipping on the smallest cog.)

Then, the Derailleur

We're finally ready to examine your rear derailleur. Start this task with the rear wheel off the bike, so you can more easily manipulate the derailleur mechanism. The derailleur has two spring-loaded pivots: one takes up chain slack by rotating the chain cage toward the rear of the bike, and the other pulls the chain cage out toward the smallest freewheel cog (except when the cyclist shifts into a lower gear). A few rear derailleurs have a third spring-loaded pivot which pulls the entire derailleur body toward the rear of the bike.

Get your hands dirty and flex the derailleur along these spring-loaded pivots. When you let go, the spring should snap the derailleur back to its original position. If it doesn't, clean the dirt out and lubricate the mechanism with light oil. Whether you clean the derailleur with a rag or use the immersion method depends on the amount of dirt present. Make sure you thoroughly clean and lubricate the two rollers in the chain cage.

And Last: The Cable

Now that you've cleaned your derailleur so that it pivots freely, you're almost finished. The only procedures left are to clean and grease the derailleur cable (if necessary), adjust the range-of-motion limiting screws and on a few models, adjust the angle at which the derailleur body rests.

Overhauling the cable is a simple operation (see *Bicycling*, June 1979, p. 16).

With the rear wheel back on the bicycle, shift to your highest and lowest gears and observe how wide a range of motion the derailleur has. It should reach just far enough in each direction to sit directly underneath the cogs on either end of the freewheel. If the range of motion needs to be altered, turn the high- and low-gear adjusting screws found on all rear derailleurs.

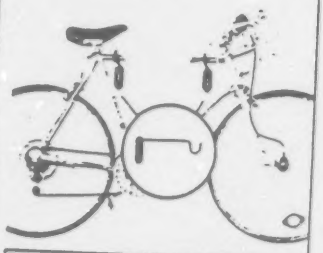
The last step is only necessary for a few rear derailleurs — the resting angle adjustment. This is best left alone, especially if there's no apparent need to change it. But if the chain sometimes skips over the smallest cog, try turning this adjusting screw counterclockwise, to position the derailleur farther forward and wrap more chain around the cogs. However, don't change the resting angle so much that the jockey roller collides with the largest cog when you shift into low gear.

Cleanliness is 90 percent of all maintenance required to keep your drivetrain rolling. The cable overhaul described above will make any derailleur, no matter how cheap or expensive, work quite well.

Next month, we'll discuss drivetrain maintenance for the front derailleur and chainwheels. Save your rags until then. □

John Schubert

THE SENSIBLE STORAGE RACK



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Bicycle Workshop

How to Troubleshoot Your Gears

A Simple Cleaning Should Improve the Workings of the Front Derailleur and Crankset

Does your front derailleur obey your wishes? Or does it throw the chain nowhere in particular, make awful noises which you can't get rid of, and respond begrudgingly to your tugging at the shift lever? And does the chain have a mind of its own? These problems can all be fixed with a methodical overhaul of the front end of your drivetrain.

In last month's maintenance article, we used a little loving care, some kerosene and a lot of old rags to make the rear end of the drivetrain (freewheel, rear derailleur and chain) work better. Overhauling the front end of the drivetrain is a different sort of job for a few reasons.

To begin with, the front shift is inherently a cruder mechanism. The front derailleur can give only a sideways shove to a chain under tension, whereas the rear derailleur cradles and guides the slack side of the chain.

Manufacturers of moderately-priced bicycles have traditionally built the front end of the drivetrain to more casual manufacturing tolerances than the rear end. Oftentimes, they've simply built them wrong. And it's quite possible that you can improve your drivetrain's front-end performance with some well-planned grinding and bending. Fortunately, newer bikes need much less of this sort of retrofitting than bikes from the early '70's and before. And cotterless cranksets are exempt from all bending and grinding.

Cleanliness First

Before you do anything drastic, get out your tools, rags and kerosene and see how much you can improve shifting performance through cleanliness.

Lift the chain off the chainwheels and around the outside of the large chainwheel. Tuck it back around the rear of the chainwheels, and it will dangle from the rear of the front derailleur's chain cage. This allows you to work on the front derailleur as if the chain weren't there.

You want to see how easily the front derailleur pivots through its range of motion. Most modern front derailleurs swing the chain cage upward as they swing it outward. Some older designs use a pushrod mechanism which moves the chain cage sideways.

Whichever kind of front derailleur you have, you want it to operate without signs of stickiness. Grab it and manipulate it through its range of motion. It should move smoothly, and the return spring should snap it back to rest position when you let go. If it doesn't, disassemble the mechanism, clean it, grease the bearing surfaces and reassemble. If the derailleur cable passes through a short casing, grease that portion of the cable. If the cable goes around a steel turnaround fitting, grease the point of contact with the fitting.

Minimal Clearance

See that the derailleur is mounted as low as possible on the frame's seat tube. It should clear the large chainwheel by only a few millimeters. The chain cage's sideplates should be parallel to the chain. If they are not parallel, rotate the derailleur on the seat tube until they are.

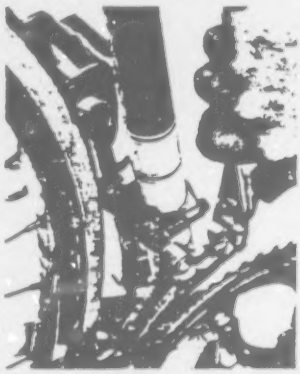
If necessary, adjust the range-of-motion limiting screws to these specifications. When the chain is on the small front chainwheel and largest rear cog (L-1), the derailleur chain cage's inner plate should not scrape the chain. And when the chain is on the large front chainwheel and the smallest rear cog, the chain cage's outer plate should not scrape the chain. The derailleur should have enough, but just barely enough, range of motion to meet these requirements.

Scrub Down

If you've done all the above and your drivetrain still misbehaves, scrub down for bicycle surgery. You're about to improve on the manufacturer's efforts.

The first step is to bend the front derailleur chain cage. This is an old trick good bike shops routinely perform on new bicycles. In the past year or so, a few manufacturers have finally begun to make derailleurs with the appropriate bends built in at the factory.

Take your pliers and gently bend the front of the outside plate about two millimeters inward. Bend the inside plate the same distance outward. By giving the chain cage a narrower nose in this manner, you improve shifting performance. The narrow nose derails the chain with greater authority than a lateral shove from the sideplate.



If you bend the nose of your front derailleur slightly, you'll get better shifting performance.

If your bike has a cotterless crankset, you should be finished now. Cottered crank people should read on.

Three Ills

A cottered crank may suffer from three common ills. They are lateral misplacement on the axle, chainwheels too close together, and dull chainwheel teeth.

Lateral misplacement increases lateral chain deflection, and that makes the drivetrain run and shift poorly. For

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reasons I do not understand and vehemently disagree with, cottered cranks are built with a great deal of slop in their design. The cotter-receiving flat spot on the crank axle is about a quarter-inch wider than the cotter pin. This allows you to move the chainwheels a quarter-inch laterally whenever you remove the cotter pin.

Check for lateral placement (more commonly known as chainline alignment) by putting the bike in L-1 gear and standing behind the rear wheel. Close one eye and look down the drivetrain. The middle cog on the freewheel should line up with the space between the two chainwheels. If it doesn't, you may want to remove the cotter pin, slide the chainwheels sideways and re-install the cotter pin. If this is a new task for you, read a good repair book before you jump into it. You may damage the crank bearings if you don't follow the proper procedure.

Now, with your chainwheels in proper chainline alignment, see whether they're too close together (as they were on so many French ten-speeds sold during the bike boom a few years back). Put the bike in L-5 gear (small chainwheel, smallest cog). The chain should not scrape against the inside of the large chainwheel.

You can use arc-joint pliers to bend your chainwheels. Bend carefully.

If it does, you should bend the large chainwheel slightly outwards. The best way to do this is with a special chainwheel bending tool, but you can find plenty of usable substitutes in your home toolbox.

Among the candidates for ad-hoc chainwheel bending tools are the claw end of a carpenter's hammer, a hefty screwdriver, the part of an adjustable hacksaw frame which ordinarily holds the far end of the hacksaw blade, and any other thin piece of metal strong enough to withstand some sideways bending. Slide your piece of metal between the two chainwheels so one end rests near one of the fixing bolts (the bolts which attach the chainwheels to one another). Bend outwards. Do the same for each of the fixing bolts to create a uniform bend.

Another good bending technique is to use arc-joint pliers. Grip the large chainwheel as close to its center as you can, and bend from several points around the circumference.

Abandon Chainguard

If all this bending causes interference problems with one of those pie-plate chainguards, I suggest abandoning it. Rubber bands around the pants cuffs cause less trouble.

Now after all this work, do you still have a drivetrain problem? One common mishap occurs like this: you're riding along in L-1 gear and the chain spontaneously derails to the inside. Or you're riding in H-1 (large chainwheel, largest rear cog) and the same thing happens. Many mechanics try to "fix" the L-1 derailment by adjusting the front derailleur so it constantly pushes the chain toward the chainwheel. That's incorrect. The derailleur should touch the chain only during shifting.

Too Blunt

These derailments occur because the chainwheel teeth are too blunt, because of lax quality control and ill-placed lumps of chrome-plating. Top-quality chainwheels have sharp teeth with carefully designed and machined profiles. The chain walks up off the top of blunt teeth, but it stays engaged on sharp teeth.

To make your chainwheels shift like good ones, grab a file and hold it against the side of the teeth. Rotate the cranks and gently grind some metal away. You don't need to do much grinding; a minute or two should be plenty. Don't worry about the ill effects of removing the chrome-plating. Oil from your chain will keep the chainwheels from rusting.

Now, that drivetrain overhaul wasn't so bad. Besides, it brings Frank Berto's famous quote to mind: "Derailleur mechanisms are a bit like democracy. It's a rotten system until you investigate what's in second place."

John Schubert

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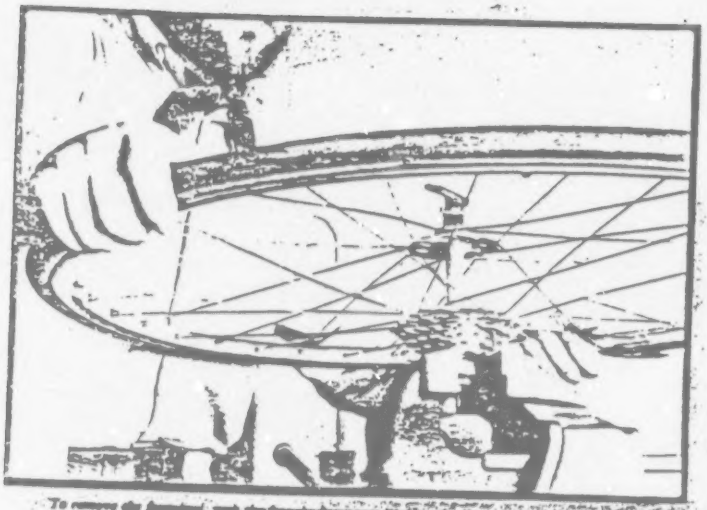

To remove the freewheel, grab the fr[illegible] sharp, clean, counterclockwise twist.

...to loosen the wheel between your legs and use a large

MAINTENANCE & REPAIR

Overhauling Hubs

A Hub Overhaul Is an Easy Job for a New Mechanic And You Learn a Lot from Doing It

John Schubert with Tim Wilhelm

Cyclists who are just starting to perform their own maintenance will find overhauling hubs — disassembling, cleaning, and relubricating them — an easy job that will teach them how to tackle messier jobs. And it's a necessary job.

How often you overhaul your hubs depends on how much and what kind of riding you do, and, more importantly, how much riding you do in the rain. For most cyclists, once or twice a year is often enough. Your riding habits may shorten or lengthen this interval.

When is it time to overhaul your hubs? One way to tell is to remove a wheel from the bicycle and twiddle the axle between your fingers. If it feels gritty, tight, and binding, or loose and sloppy, your overhaul time is past due.

Don't attempt to start the job until you have all the necessary tools at hand. This is important. No pair of pliers or adjustable wrench can take the place of cone wrenches or a freewheel remover, so hoping to "make do" will only guarantee that you botch the job. Find a bike shop that cares enough about its customers to sell good quality tools, and bring your bike with you (or as much of it as you can) the earliest time for you. Avoid cheap tools. Cheap cone wrenches, in particular, are annoyingly useless. Good ones will pay for themselves after just a few uses.

You will need:

- Two cone wrenches to fit your front hub cones. They'll probably be 13 or 14 millimeters. Both will be the same size.
- Two cone wrenches for your rear hub cones. They'll probably be 15 or 16 millimeters. Both will be the same size.
- Freewheel tool to remove your particular brand of freewheel.
- Wrenches for the locknuts of both hubs. Small adjustable wrenches work well, as do metric open-end wrenches or cone wrenches. Typical sizes are 14 to 16 millimeters front, 16 to 18 millimeters rear.
- Large adjustable wrench (12-inch handle) to remove the freewheel. If you have a securely-mounted bench vise, use that instead of the wrench.
- Tweezers or a small magnet to grasp ball bearings.
- Small screwdriver.
- Grease.
- Small can of solvent.
- Rags.
- Old toothbrush.

These instructions and diagrams are for the hubs found on derailleur bikes. Some one-speed and three-speed bikes have front hubs which can be overhauled without tools. (On those hubs, one bearing cone is permanently fixed onto the axle. The other cone screws on and off; and has no locknut to hold it in place.) Those hubs are easier to overhaul than the ones we'll describe.

Remove the Freewheel

The derailleur bike's rear hub is somewhat more complicated than the front hub, so we'll describe it first. After the rear hub, the front hub is a snap.

With the wheel removed from the bike,

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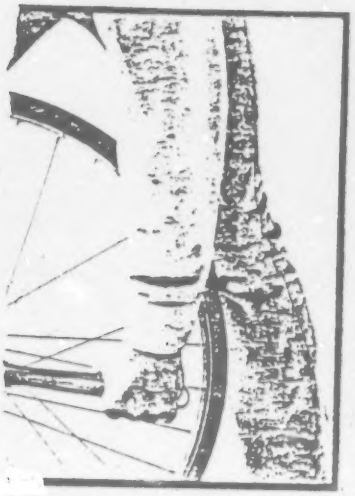
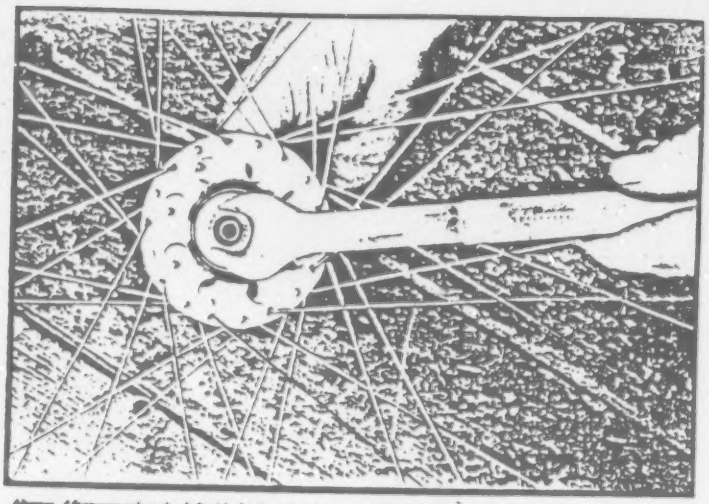
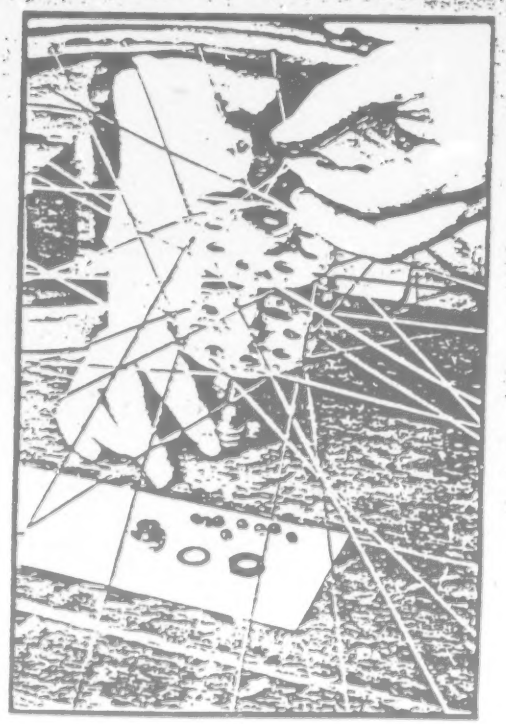


Adjustable wrench to loosen the freewheel.



Above: After removing the left-side locknut and washer, unscrew the bearing cone. Below: Lower the axle halfway through the hub to allow access to the bearings. Use fingers, tweezers, or a magnet to remove them from the hub. Don't lose any.



the first step is to remove the freewheel. (While it's possible to overhaul the hub with the freewheel in place, we don't recommend trying it.) Remove the quick-release skewer or axle nut and fit the freewheel tool's prongs or splines into the body of your freewheel. If your freewheel tool has prongs and not splines, you must reinstall the skewer or axle nut to hold it onto the body. (This is optional for splined freewheels.)

If you're using a wrench to remove your freewheel, hold the wheel on the floor and stand leaning over it. Put the 12-inch adjustable wrench on the remover's wrench flats so that its handle is in the three o'clock position. Put one hand on top of the wheel to hold it in place and the other hand on the wrench. Pause, take a deep breath, and focus your powers of concentration. Give a strong pull upward on the wrench while holding the wheel absolutely still. The freewheel should begin to unscrew (in the conventional, counterclockwise direction).

If you're using a vise, removing the freewheel is somewhat easier. Just clamp the freewheel remover in the vise, grab the wheel on either side, pause and concentrate, then give a sharp counterclockwise twist. As soon as the freewheel breaks loose, remove the quick-release (or axle

Sally Ann Shead

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Overhauling Hubs

nut) and then spin the freewheel off the hub. You now have easy access to both sides of your rear hub.

Remove the Axle

Now it's time to remove the axle so you can get at the bearings. To do that, you simply unscrew a bearing cone and locknut, and pull the axle out of the hub. But before you begin, keep two things in mind:

First, the job is easier if you leave one cone/locknut set tightened on the axle. If you don't, you'll have to fuss around when you reassemble the hub so that just enough axle protrudes beyond the locknuts on each side.

With quick-release hubs, you have very little margin for error in this adjustment. The wheel won't go on the bike properly if the axle protrudes too far on one side and not far enough on the other. So leave one cone alone.

Second, on the rear hub, the cone you should remove is the left cone. Why? Cones are screwed onto the axle with ordinary right-hand threads. If a left cone loosens, it will unscrew slightly. The locknut will stop it from loosening further, and you'll have a very slightly loose bearing. But if the right (freewheel-side) cone comes loose, it will screw into the bearings and cause them to bind, damaging the hub.

Since you have to remove the freewheel to adjust the right cone, now's a good time to put one wrench on the right cone, another on the right locknut, and tighten them against each other severely. Make sure they'll never come loose.

To remove the axle, put a cone wrench on the left cone and another wrench on the left locknut. Holding the cone wrench still, loosen (turn counterclockwise) the locknut. It should unscrew and come off the axle.

In between the locknut and cone is a key washer, which has a little tang that fits into the slot on the axle. The idea is that the key washer can't rotate, so you can turn the locknut without the cone turning. The little tang usually gets stripped off, so don't count on the key washer to work. (But don't discard it — the axle is built with its width in mind.) You may need to pry the key washer loose with a screwdriver before it will slide off. Once it is removed, you're ready to unscrew the cone.

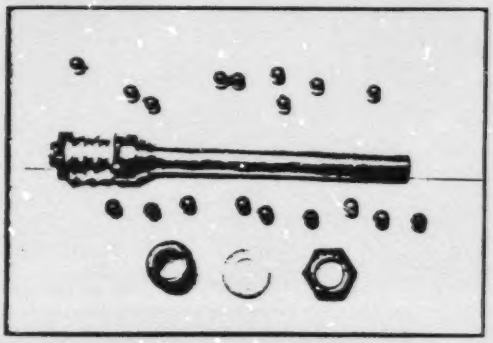
When you unscrew the cone, it's possible to have the unwanted chaos of ball bearings raining all over the floor. There's an easy way to avoid this, however. Set the wheel horizontally on the workbench or floor, cluster-side down. The weight of the wheel will hold the axle in place, so the cluster-side bearings can't fall out. Now unscrew the left-side cone and remove it. Grab the wheel in one hand and the axle in the other. Lift the wheel off the floor and let the axle drop down halfway inside the hub to allow access to the left-side bearings. The axle will still trap the right-side bearings in place.

Count the left-side bearings. Use fingers, magnet, tweezers, or the turn-upside-down-and-shake method to get all the left-side bearings out. Count them again, and set them in a paper cup. Now drop the axle clear of the hub and collect the right-side bearings in another cup.

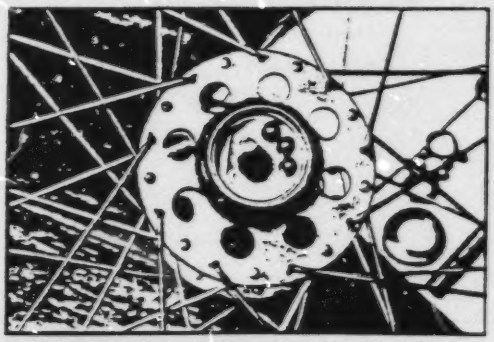
If you want, you can use a screwdriver to pry the dust caps (little metal washer-shaped pieces) loose from the hub. This makes getting at the bearings easier. If you do so, be careful — it's easy to bend the dust cap.

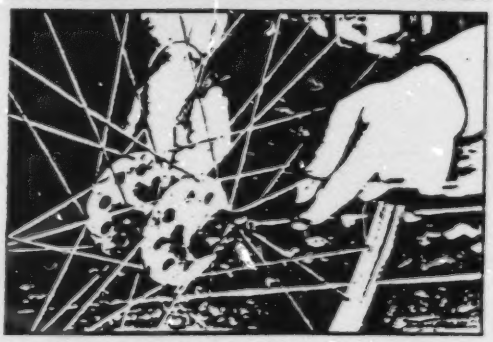
Clean the Bearings

Put the ball bearings on a rag and wipe off as much grease as possible. Then,



Sally Ann Shenk





Top to bottom: Parts removed from the hub and awaiting cleaning: the axle, with freewheel-side bearing cone, spacers, and locknut left in place (see text), the bearing balls and left-side cone, locknut, and washer. The now-clean balls being packed in fresh grease. We removed the hub's dust cap for visual clarity. You don't need to remove it to do the job, however. After reassembly, the final adjustment: Slightly overtighten the locknuts so the axle doesn't spin very freely. Then put a wrench on each bearing cone (as pictured) and very slightly loosen the bearings. Performing the adjustment in this sequence makes it easy to get it exactly right.

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Overhauling Hubs

remove them to a clean rag, bundle them up securely, and agitate the rag with the bearings in a small can of solvent. If you can't find solvent in small enough quantities (try gas stations and hardware stores), use paint thinner, kerosene, or home heating oil; the latter two leave a greasy film. When the bearings are clean, open the rag and inspect each individually. If you find any with flat spots, dents, cracks, or dull spots it is best to replace the entire set. They are cheap and easily available at your neighborhood bike shop. Most front hubs use ⅛-inch balls, most rear hubs, ¼-inch balls. (There are several exceptions to these numbers, though.)

Next, clean all grease and dirt from the bearing cups pressed into the hub itself. When clean, inspect this surface for any major pits or rough spots. On some hubs the ball cups are replaceable, but such parts are very hard to find and the job should be delegated to your bike shop mechanic.

The axle, cones, key washers, and locknuts can now be cleaned by dipping in solvent and wiping with a clean rag. Carefully inspect the cones for pits and rough spots indicating a need for replacement. See if the tang on the key washer is intact. If it isn't, you might want to see if you can buy a new one. Check the axle for stripped threads while cleaning the threads with a stiff toothbrush. Check for a bent axle by replacing the left cone and observing how the axle rolls on a flat surface such as glass. If bent, you will need a new one.

In most cases, you won't need to replace any parts. Bicycle parts last a long time if they receive regular maintenance.

Lubricate the Hub

It is time to lubricate and reassemble the hub, but first a word about grease. Buy a quality grease formulated for bicycles. If the grease you buy does not come in a tube with a long nozzle, you might want to purchase a large (four- to six-inch) plastic hypodermic syringe without the needle at a feed or farm store. Get one with a ½- to one-inch tip. This is a handy tool for inserting grease into tight spots during various maintenance projects.

Begin to reassemble the hub by applying a generous amount of grease around the inside of both bearing cups on the hub. Place the ball bearings into the greased cups. A tweezers comes in handy for this. There should be a space about the size of one bearing when the ball bearings are in place. You may find an improper number of bearings in a new hub, so don't rule out adding or subtracting some. Almost all rear hubs use nine balls per side; most front hubs use ten.

If you removed the dust caps, replace them (with the sharp edge down) and gently tap flush to the hub with a hammer.

Carefully insert the axle into the freewheel side of the hub. Screw the left cone back into position "finger tight" (don't use a wrench), drop the key washer down the axle against the cone, then screw the locknut in place.

Now is the time to adjust the cones against the ball bearings, a crucial step. Don't rush this. On quick-release wheels, you should adjust the cones and tighten the locknut so that a barely detectable amount of play can be felt when push pulling the axle. This disappears or is barely discernible at the rim when the wheel is held in place with the quick-release, because the quick-release skewer compresses the axle. On wheels with axle nuts, you should adjust the cones so that there is no play but no binding either.

Remember, the cone is held in place by the locknut. So use a cone wrench to get the cone in proper position, and then use another wrench (cone wrench, adjustable wrench, or open-end metric wrench) to tighten the locknut against it. It works best to slightly overtighten the cone and then loosen it.

This is why you want to have the luxury of two cone wrenches instead of one. You can loosen the left cone by putting a wrench on its locknut and another on the cone itself — but it's sometimes hard to get the exact adjustment you want. The fail-safe way to get the adjustment you want is to overtighten the cone, snug the locknut against it, and then put cone wrenches on the two cones. Twist to loosen them with respect to each other. You'll find it easy to get the adjustment right, and both locknuts will be snug. If you only have one cone wrench, the job will be more difficult. But keep at it, and you'll get it right.

Clean the freewheel threads and grease them liberally. (This grease is important for future freewheel removals.) Replace your spoke protector if you wish, and carefully screw the freewheel onto the hub. Be sure it goes on straight with no cross-threading.

Replace your quick-release skewer and the springs which center it on the axle. Now you're ready to put the wheel back on the bicycle.

Now, that wasn't so bad was it? After doing the rear hub, the front is simple because there is no freewheel, chain, or derailleur to contend with. As with most bike repair projects, overhauling your hubs will probably take longer than you think the first time or two, but the feeling of accomplishment and smooth rolling hubs are well worth the time and effort. Try it and you will be well on your way to competence in bicycle maintenance.

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1) Student ____ Non-student ____ Female ____ Male ____

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2) I attended (how many) ____ out of (numbered offered) ____ class meetings.

3) Did you like this class? YES ____ NO ____

4) Of what value was it to you?

5) What improvement would you suggest?

6) Why did you choose to take this class?

____ learn about the subject

____ try something new

____ be doing something with other people

____ have a break from studies or work

____ meet new people

____ I'm already into this and wanted more

____ other _____

7) The time I would most like to see a class offered is:

early morning ____ late morning ____ noontime ____ early afternoon ____

late afternoon ____ evening ____

Mon. ____ Tues. ____ Wed. ____ Thurs. ____ Fri. ____ Sat. ____ Sun. ____

(over)

Name_____

Personal Bike Repair and Adjustment
Worksheet

1. Remove wheels, replace and secure them.
2. Patch a tire.
3. Change a tire.
4. Adjust and fasten seat to proper height.
5. Remove handlebars - replace them in the correct position and tighten.
6. Remove pedals and then replace and secure them.
7. Locate cable housing for brakes and squirt with light oil.
8. Locate brake pivot bolts and squirt a few drops of oil on them.
9. Align brake shoes by loosening eyebolt, then tighten.
10. Replace brake shoes.
11. Replace brake cable.
12. Locate front and rear derailleur moving parts and squirt light oil.
13. Replace derailleur cable.
14. Adjust front and rear derailleur
15. Locate freewheel mechanism and squirt a few drops of oil.
16. Remove a chain and replace the chain.
17. Replace a spoke.

_____
Signature of Bike repair supervisor

Reason why I took this class.

After taking this class I would like to be able to make basic repairs on my bike.

Not important 1 2 3 4 5 Very important

I don't ride much now because I don't know enough about fixing my bike if it breaks down on the road.

Not important 1 2 3 4 5 Very important

I know a good bit about bikes and I am interested in gaining specialized skills in specific areas.

Not important 1 2 3 4 5 Very important

I am mainly interested in learning about the parts of my bike so I don't feel so dumb when I need to go to a shop for repairs or to buy parts.

Not important 1 2 3 4 5 Very important

OUTDOOR RECRSATION CENTER
CLASS EVALUATION

In order to function well, the ORC needs to hear participants' viewpoint of their experience. Please complete this questionnaire and add anything else you would like to communicate with us. We appreciate your help.

ORC class _____ Day/Time _____ Today's Date _____

1) Student ___ Non-student ____ Female ____ Male ____

FR ____ SO ____ JR ____ SR ____ GRAD ____ IN (academic area) ____

2) I attended (how many) ____ out of (numbered offered) ____ class meetings.

3) Did you like this class? YES ____ NO ____

4) Of what value was it to you?

5) What imorovement would you suggest?

6) Why did you choose to take this class?

____ learn about the subject

____ try something new

____ be doing something with other people

____ have a break from studies or work

____ meet new people

____ I'm already into this and wanted more

____ other _____

7) The time I would most like to see a class offered is:

early morning ____ late morning ____ noontime ____ early afternoon ____

late afternoon ____ evening ____

Mon. ____ Tues. ____ Wed. ____ Thurs. ____ Fri. ____ Sat. ____ Sun. ____

(over)

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**Please circle the most appropriate response as follows:

(1) strongly agree (2) agree (3) mixed feelings (4) disagree (5) strongly disagree

8)	Overall, I am satisfied with the class	1 2 3 4 5
9)	I think the teacher had good knowledge of this subject.	1 2 3 4 5
10)	The teacher communicated that knowledge well.	1 2 3 4 5
11)	The material was presented too simply.	1 2 3 4 5
12)	The things being taught were too difficult for my level of understanding.	1 2 3 4 5
13)	I feel I could now work on this on my own.	1 2 3 4 5
14)	I know enough about it that I would feel comfortable with it.	1 2 3 4 5
15)	I gained specific skills in areas I needed work on.	1 2 3 4 5

**Rate the following: (6) highest, (1) lowest)

16)	Course format	6 5 4 3 2 1
17)	Course content	6 5 4 3 2 1
18)	Student's opportunity to learn	6 5 4 3 2 1

19) ADDITIONAL COMMENTS:

20) Thank you. Please return this form to the Outdoor Recreation Center, Box 58, Mankato State University, Mankato, MN 56001. Phone: (507) 389-6270.

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APPENDIX D

COURSE OUTLINE FOR BICYCLE TOURING WITH
CONCORDIA COLLEGE'S MAY SEMINAR

Concordia College
BICYCLE TOURING
Course Outline

Vivian Wensel, Instructor

A. EXPECTED COMPETENCIES

1. Learning to select, fit and care for a ten-speed bicycle.
2. Gain experience in maintaining a bicycle, selecting accessories and tools.
3. Learn fundamentals and techniques in individual and group cycling and touring.
4. Gain an awareness of all safety factors involved in cycling.
5. To achieve an awareness of the attributes of cycling as a low-resource consuming physical fitness activity.

B. COURSE CONTENT

1. Fundamental Skills
   a. mounting
   b. dismounting
   c. into and out of toe clips
   d. braking - rear, front, both
   e. hand positions
   f. balancing
   g. slip streaming
   h. climbing hills, descending hills
   i. use of mulit-speeds
   j. ankling
   k. cadence, pacing
2. Other Skills
   a. emergency stops and evasive actions
   b. jumping holes and also avoiding obstacles
   c. turning - varying speeds and in case of hazards
   d. couple riding, group riding
      1. eschalon
      2. leader method
   e. special condiserations - traffic, railroad crossings, gravel, rough terrain, wind, rain
   f. historical perspective
3. Selection and Fitting of the Bicycle
4. Proper Care - preparation of bicycle and maintenance
5. Selection of Accessories and Tools
6. Safety Precautions and Practices
7. Touring for Increasing Time and Distance
8. Selection of Routes

C. TYPES OF EXPERIENCES

1. Demonstrations
2. Discussions
3. Analysis
4. Practice - individual, couple, group riding including tours
5. Selected Readings

D. EVALUATION

1. Participation in all events and development of skill in areas of instruction
2. Checklists and skill testing
3. Touring techniques
4. Written worksheets

May Seminar 1979
Bicycle Touring in Europe
Physical Education
Vivian Wensel, tour leader

A. Objectives of the Course
1. To provide the opportunity for total immersion in the cultures of the area being toured (physically, intellectually, socially, emotionally).
2. To develop more self-reliance when confronted by unfamiliar situations.
3. To be responsible group members - recognizing the importance of cooperation, self-discipline and promotion of healthy social interactions.
4. To provide flexibility of scheduling that allows for optimum individual growth
5. To develop independence in touring and discovering pursuits that will enhance each student's education.
6. To develop an awareness of the need for physical fitness and the guidelines for developing a life-style using a low-resource consuming vehicle.
7. To have the tour be a highlight of one's life - fun, adventure, discovery and challenge.

B. Expected Competencies
1. Keep a well-functioning bicycle and gear ready for touring.
2. Be a responsible group member and disciplined individual.
3. Participation in group activities.
4. To pursue individual interests that can make life more fun, interesting stimulating without infronging on the rights of others or shirking responsibilities to the group.
5. To contribute to the growth of oneself and other cyclers by presenting materials and leadership in completing assignments.
6. To prepare one's self to give and receive in order to accomplish your own goals as well as to achieve the objectives defined by the tour leader.

C. Methods
1. Guidance by tour leader, using pre-seminar materials to expand on-site developments.
   a. Review of materials
   b. Introduction to new facets
   c. Familiarizing students to routes, cultural awareness, similarities or uniqueness as it occurs in any area of the tour.
2. Student led presentations and discussions using pre-seminar prepared materials as well as developments that occur on the tour.
3. Cycling cities, villages, along rivers, hills, valleys: observing how and what people do for recreation.
4. Attend plays and folk festivals or other special events in the villages and cities.
5. Shop in the market place, tour farms, schools, cathedrals, churches.
6. Lectures by local citizens on their locality.
7. Tours of historical sites - using guides whenever possible/feasible.
8. Provide "free" time to explore and discover, converse, exchange and develop interests and insights.
9. Home stays.

10. Eat at lodgings, homes, commercial establishments, picnic.
11. Converstaions with people of all ages, ways of life - participating in functions whenever possible.
12. Develop an independent tour - meeting with the tour leader - to expand one's horizongs/interests.

D. Assignments
1. See pre-seminar advance requirements for research papers and presentations.
2. See separate hand-out on assignment for keeping a journal and developing papers from it.
3. See pre-seminar assignment on development of final paper on independent tour.
4. See pre-seminar paper on you as a tour guide for a particular area.
5. At the end of a touring day, inspect your bicycle and make necessary adjustments so that it is ready to be packed and ridden on the next day.
6. Be on time for designated group meetings ..ie. to begin the cycle day, meeting at appointed places, participating in scheduled events.
7. Be good ambassadors abroad.

E. Evaluation
1. Preparation of bicycle for touring.
2. Providing your own tools, as listed on sheet.
3. Development of bicycling techniques and touring.
4. Individual development - self-reliance, cooperation, cultural awareness, participation during the tour, leadership as assigned or developed to suit the occasion.
5. Participation in group events.
6. Journal and papers - weekly and final
7. Your role as tour guide and as the "expert".

Note: A more complete grading sheet will be discussed with you, so you will have a more accurate gauge of the tool used for measurement.